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November, 1933, Volume IX, Number 11, Western Gas is published by Western Business Papers, Inc., at 810 South Spring Street, Los Angeles, California. Subscription price (in advance) 25 cents the copy; $2.00 per year; 2 years, $3.00; $3.00 per year foreign. Entered as second class matter June 1, 1925, at the postoffice at Los Angeles, under the Act of March 3, 1879.

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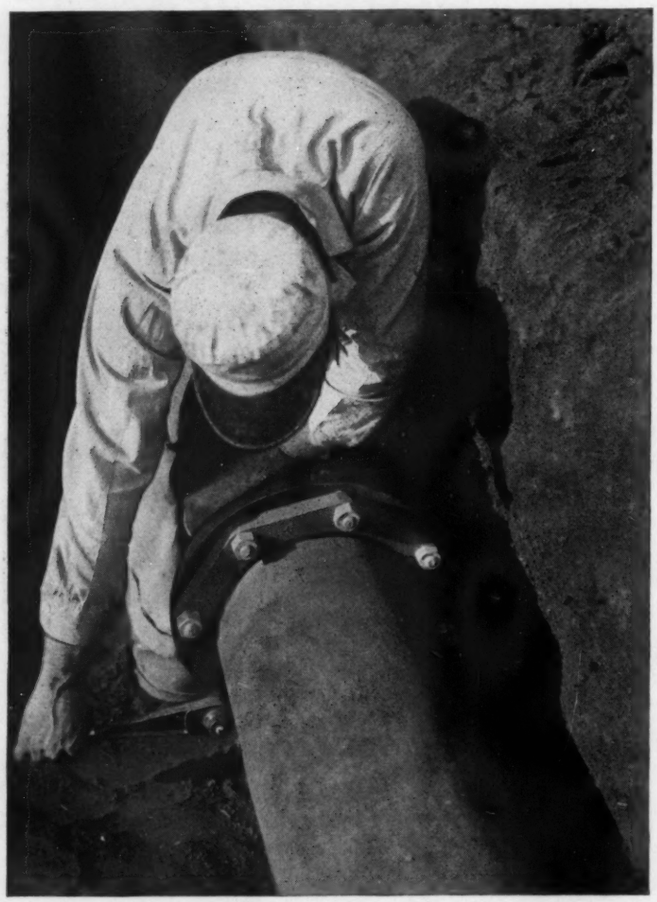

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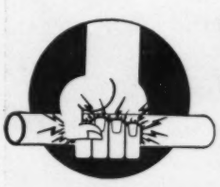

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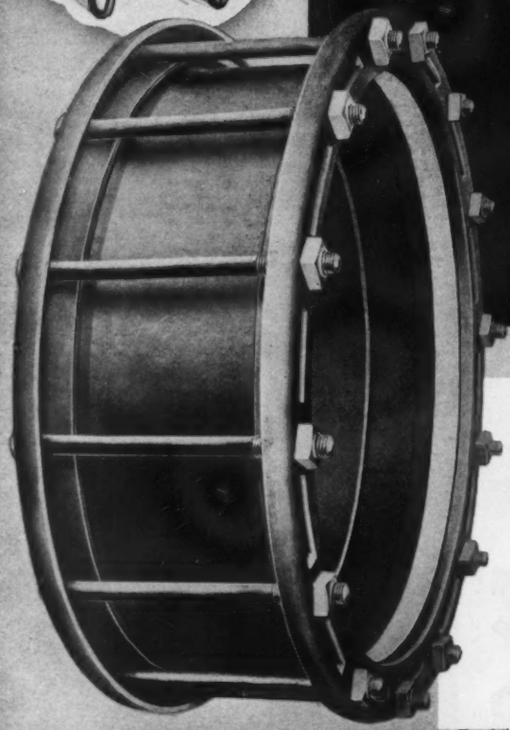

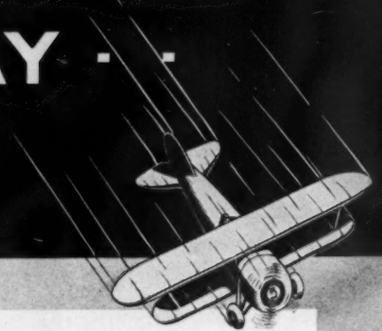

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WESTERN GAS

"Reg. U. S. Pat. Off."

Publication Office: 810 South Spring Street, Los Angeles, Calif.
District Offices: 110 East 42nd Street, New York; 447 Sutter Street, San Francisco

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WESTERN GAS is published by Western Business Papers, Inc., 810 South Spring Street, Los Angeles, Calif.

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JAY JENKINS, Publisher. GEORGE H. FINLEY, Editor. CRAIG ESPY, Eastern Manager.

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THE WIDE USE OF NATURAL GAS AND CENTRALIZATION OF MANUFACTURED GAS PRODUCTION PRESENT PROBLEMS IN HIGH PRESSURE DISPLACEMENT MEASUREMENT WHICH THESE AIDS TO GOOD SERVICE ARE SOLVING . . .

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November, 1933

WESTERN GAS

"Reg. U. S. Pat. Off."

Vol. IX, No. 11

A Monthly Journal of the Gas and Gas Appliance Industries in *Western America*

Review of the Month

No Time to Experiment with Inter-Industry Competition

Possibility that a proposal may be brought before Congress, with NRA backing, calling for an "equalization" tax upon natural gas to offset increased coal costs necessitated under the coal code, has been suggested in recent press comments growing out of the coal code conferences.

This business of equalizing competition between industries offers complexities too infinite to contemplate; tariff adjustments appear simple by contrast.

It would seem that calling upon every industry to bring its labor scales up to reasonable and livable minimums, as contemplated by the present recovery program, should place intra-industry competition upon a just basis. Let competing industries serve that share of the common market which is theirs by right of geographical location, efficiency of utilization equipment, or similar basic advantages.

Commission Attitudes on Increased Costs Under NRA

A recent poll of state utility commissions made by Dow Jones & Co., Inc., inquired whether increased costs due to NRA compliance would be considered grounds for rate increases. Replies from many commissions indicated that rate relief will be given utilities if earnings are reduced below the fair-and-reasonable-return line; several commissions indicated that they expect utilities to offset any increased expense by increased business accruing from general recovery; still others expect stockholders to absorb cost increases involved in wage raises.

A few regulatory bodies such as the Missouri Public Service Commission are definitely on record urging signature of code agreements and guaranteeing immediate relief to utilities where the character of their service or their financial integrity is threatened.

Alabama Communities Decline Municipal Ownership

Perhaps the best answer to the combined threat of municipally owned distribution facilities for government-produced power (or gas, who knows), is the final common sense judgment of the American public.

So it appears at least in Alabama communities where elections in September and October have gone decisively against municipal ownership of utilities—and this in spite of the influence exerted by Tennessee Valley Authority representatives.

Homewood, Alabama, cast its vote against the municipal proposal on September 4, Birmingham on October 9. A letter from David E. Lilienthal, member of the Tennessee Valley Authority, was published on September 4 in the Birmingham Post urging that municipal ownership elections be speedily held in areas eligible for Muscle Shoals power.

In Birmingham municipal ownership was at issue for electric distribution facilities, domestic water service, street railway, and central heating system. The campaign defined the broad issues of public versus private ownership, and the voters registered an unmistakable verdict.

A New Cover

STARTING with the current issue, readers of *Western Gas* will note a change in front cover style. The new dress is an improvement, we feel; more effective display of cover subjects is possible in the larger space now available. We welcome suggestions from readers for worth while cover views, representative of gas company activity in construction, sales promotion, or kindred fields.

This month's cover presents a scene at the Marias River crossing on Montana Power Co.'s Cut Bank-Butte-Anaconda 20-inch natural gas line—one of the most recently constructed of the larger pipe line systems—*Editor.*

New Methods Required to Hold Domestic Business

Gas men are less and less bound by traditional ways of accomplishing things. As a whole the industry shows a ready interest in pioneering new loads, such as refrigeration, adapting its methods to the requirements of the field.

Now it seems that new methods are demanded to keep gas sold in an established field, the kitchen. Closer competition for this basic business by other fuels means that gas service in the kitchen must be *modern* gas service. Sponsoring kitchen modernization among present customers is part of the answer; an article in this month's issue gives attention to plans of three companies which are conducting kitchen styling services.

Will Not Re-Hear Kansas Anti-Merchandising Cases

Kansas State Attorney Roland Boynton filed a motion for a re-hearing of the anti-utility merchandising cases. On September 29 the Kansas Supreme Court denied his motion, leaving utilities free to resume sales activities, and placing a period to the litigation on Kansas' ill-considered anti-utility merchandising law, written onto the statute books in 1931.

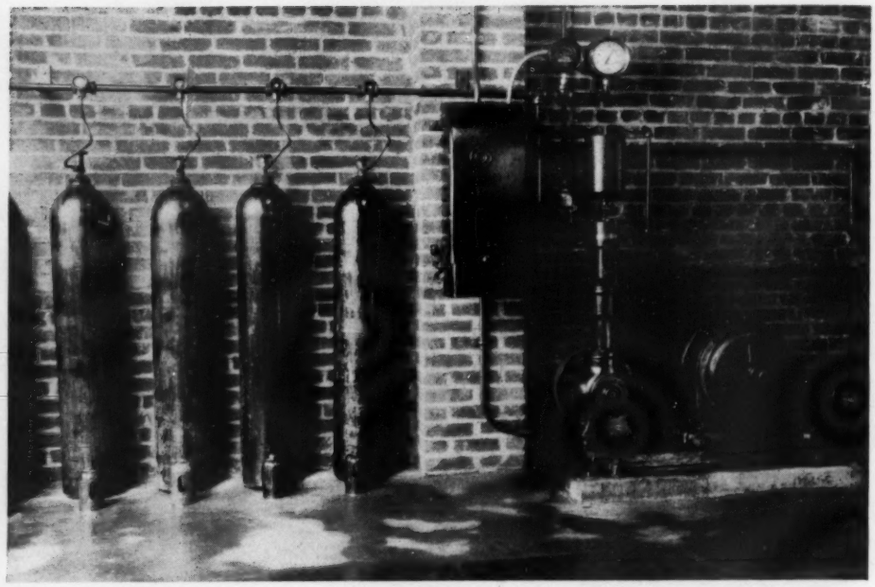


FIG. 1
View of Southern Counties Gas Co. set-up for compressing natural gas.

Bottled Natural Gas Main and Service

By F. H. WINSLOW

IN a widely scattered gas system that supplies as much rural territory as does that of the Southern Counties Gas Co., the cost of putting an air pressure test on short main extensions is sometimes excessive because of the time and mileage involved in sending an air compressor to the job. To reduce these testing costs, compressed natural gas in steel bottles (oxygen cylinders) is now supplied to the construction crews.

F. H. Winslow

Natural gas is taken from the city mains and compressed to 2000 pounds per square inch at our general shop in Los Angeles. Bottles filled with the gas at this pressure are shipped from the general shop to our Districts. Each construction crew in each District is provided with the gas.

This paper describes the equipment used to compress and handle this gas; gives cost data concerning its production and use; and describes the various valuable secondary uses found for it since it has been made a part of the standard equipment of the construction crews.

Compressing and Handling Equipment

Unless one desires to extract all of the moisture from the gas, an inexpensive set-up can be constructed for about $660, as shown in Fig. 1. The compressor used in the set-up is a 1 x 3½-in. water-cooled compressor having a capacity, with a 250 lbs. per square inch inlet pressure, of 15 cubic feet of free air per minute. It is driven with "V" belts by a 7½ H.P. electric motor. After being compressed from 250 lbs. to 2000 lbs., the gas passes through an after-cooler made of ⅜-in. copper tubing coiled to fit into a small open tank. Cooling water from the jacket of the compressor passes through this tank. The gas passes from the after-cooler to a moisture trap consisting of a small steel bottle. A relief valve set for 2100 lbs. is tapped into this small bottle and acts only as a signal to the operator, as it soon freezes after it starts to pop. The bottle is securely anchored to the wall so that it can not move when the relief valve pops. The gas then passes into a ¾-in. extra heavy pipe header made up with litharge and glycerine. The header has connections for eight bottles. Each connection is equipped with a ¾-in. No. A-5119 Prest-O-Lite hydrogen valve, left-hand thread, Eastern standard type. These valves have a diaphragm instead of the conventional stuffing box. The bottles are connected to these valves by copper pigtails. To protect the compressor, piping, and bottles from excessive pressure, a Mercoid pressure switch set for 2200 lbs. per square inch is connected to the starter box.

The bottles used for shipping the gas are regular standard 8½-in. I.D. x 51-in. I.D. oxygen cylinders, with 3⅛-in. steel caps and plain collars. They are tested to 3360 lbs. per square inch. The cost, including freight and insurance, is $16.80, plus $1.57 for oxygen valve, or a total of $18.37 for each bottle.

The bottles have an internal volume of 1.67 cubic feet and contain when full about 228 cubic feet of a perfect gas, or 272 cubic feet of natural gas (difference due to deviation from Boyle's Law), at 60° F. and at 2000 lbs. pressure.

The cost of the compressed gas, including power, gas, labor connecting and disconnecting the bottles, labor checking compressor periodically, and overhead, averages $0.00387 per cubic foot.

Due to the moisture in the gas, standard oxygen or hydrogen regulators are not entirely satisfactory; consequently a needle valve is used. Fig. 2 and Fig. 3 show a hand control assembly which is very easily kept clear of ice by slightly opening and closing the needle valve. The relief valve in this case does not have a tendency to freeze as the high pressure reduction takes place at the needle valve. These controls can be manufactured for about $17 each. They are made up for three different pressures—100 lbs., 500 lbs. and 2000 lbs., the 100 lbs. and 500 lbs. for services and mains, and the 2000 lbs. for special testing and shop work. The only difference in the controls for these different pressures is the pressure for which the relief valves are set. For tests up to 100 lbs.,

FIG. 2
(At Left)
Hand control assembly on oxygen cylinders used for shipping the compressed natural gas.

for Testing

Superintendent General Repair Shop
*Southern Counties Gas Company**

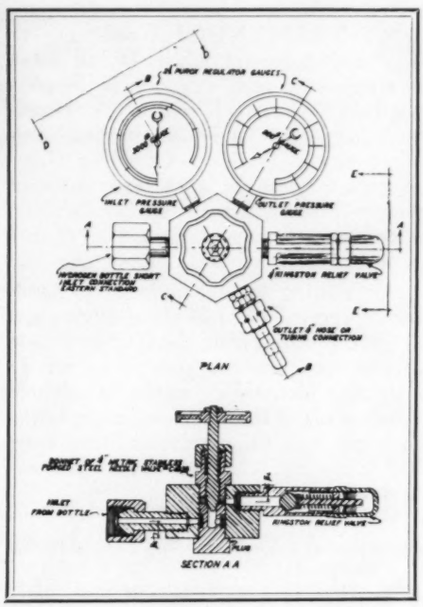


FIG. 3
(Below)
Diagram of hand control assembly.

welding hose is used to connect the bottle to the main or service. For tests up to 2000 lbs., ¼-in. copper tubing is used.

Utilization Cost Data

It is rather difficult to give accurate data on the amount of services or mains which one bottle (272 cubic feet) of bottled natural gas will test, due to the amount wasted through loose connections and leaks. However, the following case is interesting.

With one bottle of natural gas at 2000 lbs. pressure, the following tests were made:

750 feet of 2 in. main at 85 lbs. pressure
600 feet of 2 in. main at 60 lbs. pressure
422 feet of 2 in. main at 50 lbs. pressure

The number of services or main extensions which could be tested to 50 lbs. pressure from one bottle of gas, provided there were no leaks or waste, is as follows:

324.8—¾ in. services—average length 50 ft., or 16,240 ft. total
200.0—1 in. services—average length 50 ft., or 10,000 ft. total
115.4—1¼ in. services—average length 50 ft., or 5,770 ft. total
51.6—2 in. main extensions—average length 100 ft., or 2,580 ft. total
23.4—3 in. main extensions—average length 100 ft., or 1,170 ft. total

In comparing the cost of pumping 50-ft. services up to 50 lbs. by hand, or using bottled gas for testing, using 62c per hour for labor for hand pumping, and $1.57 per bottle for gas (delivered to the district), we find the following:

PUMPING BY HAND

30—¾ in. services	$.0206 each
20—1 in. service	.031 each
12—1¼ in. services	.0516 each

USING BOTTLED NATURAL GAS

324.8—¾ in. services	$.0048 each
200.0—1 in. services	.0079 each
115.4—1¼ in. services	.0137 each

This does not take into consideration any leaks which may occur and which would be difficult to locate by the hand method, or any connecting charge, which would be the same with either method.

The saving effected on short main extensions by using bottled natural gas as against sending a compressor to the job, is more impressive because of the mileage saved. One job of 855 ft. of 2-in. main tested with bottled natural gas cost as follows:

Labor installing gauge and testing with gas (35 minutes)	$ .354
Cost of compressed gas	.520
Total	$ .874

To have tested this same main with a compressor, the cost would have been:

Labor driving compressor and installing gauge	$1.17
8 miles for compressor	.96
Operating compressor (15 minutes)	.35
Total	$2.48

When services are connected to high-pressure transmission lines, it is difficult to obtain a suitable hand pump to test to 400 or 500 lbs. per square inch before drilling into the main. With bottled gas any test up to 2000 lbs. can be made.

Secondary Uses for Compressed Gas

We have found compressed gas very useful and economical for clearing stoppages in dry risers and connections. By introducing gas from the bottle

(Continued on Page 26)

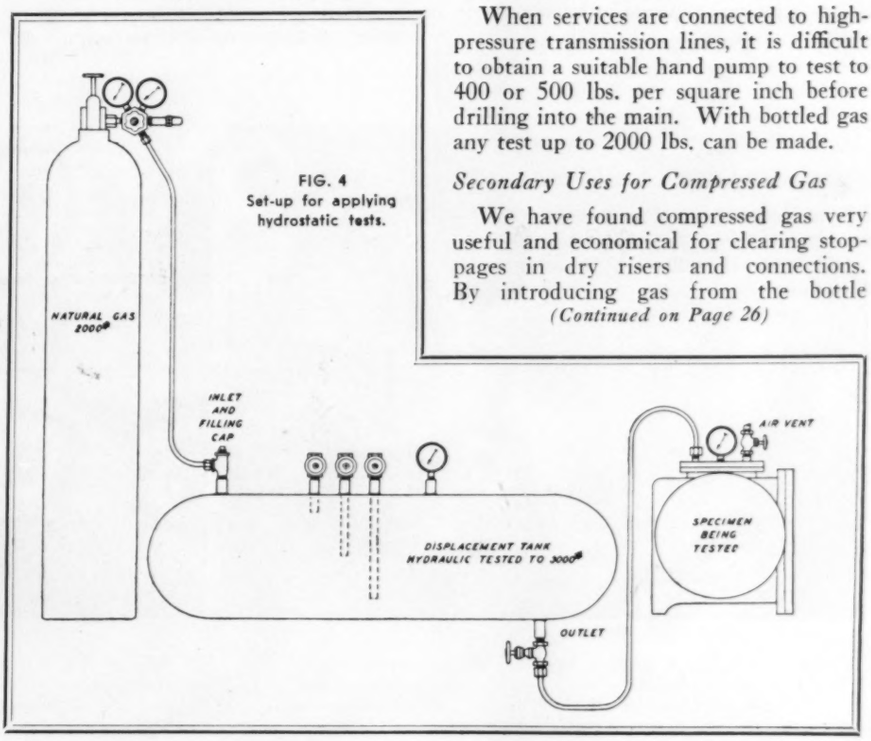


FIG. 4
Set-up for applying hydrostatic tests.

* Presented at the Spring Conference of the Pacific Coast Gas Association's Technical Section.

Kitchen Planning . . . . the Next Step

AN ACTIVE nation-wide kitchen styling program—identifying gas service and modern gas appliances as an essential element in the modern kitchen—seems to be the next step toward which the gas industry is tending in alert pursuit of its domestic market opportunities. The idea is not altogether new, being a logical goal of present home service organizations, but its present application has new and broader aspects than before. Around a kitchen modernization service a growing number of gas companies now aspire to build a coordinated program of load building promotion through modern gas ranges, refrigerators and water heaters. At a later point in this article three separate kitchen styling programs now in operation are described.

In its present development the idea is the outgrowth of the work of the American Gas Association, National Directing Committee of Executives, which has been concentrating its best thought upon ways and means for meeting the competitive needs of the industry. In June of this year the National Directing Committee recommended to the A.G.A. executive board that member gas companies set up a kitchen styling service for the use of individual customers, contractors and builders, architects, engineers, and building owners engaged in kitchen modernizing work.

OF TREMENDOUS assistance to any company which is interested in establishing such a service, is the publication "Modern Kitchens—A Handbook for Design and Construction" prepared at the National Directing Committee's request by a woman architect widely experienced in kitchen styling, with the assistance and advice of the A.G.A. Home Service Committee.

An outline accompanying the handbook suggests the following advantages to gas companies from the kitchen styling service, and also suggests ideas for an operating plan which might be adapted to the needs of the company inaugurating such service. Of particular interest are the following selections from this outline:

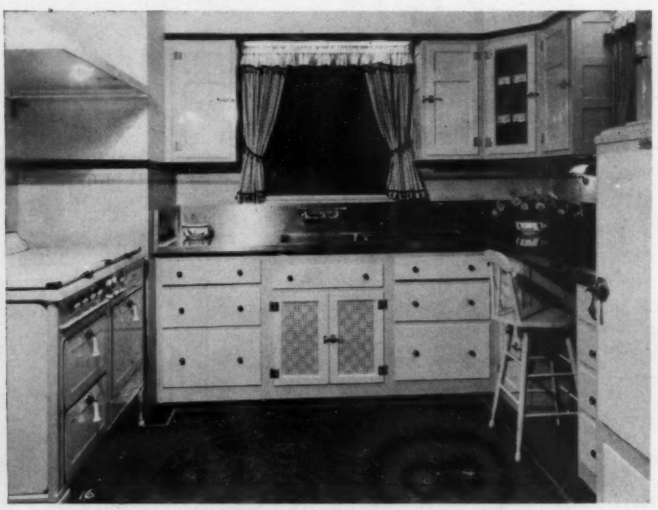
A. Value of a Kitchen Styling Service to Gas Companies.

1. Provides medium for sales of new ranges, refrigerators and water heaters.
2. Provides an additional service to tie-in with "Cooking-With-Gas" campaigns.
3. Offers consumer a *practical* service on a subject which is widely discussed, but on which very little has actually been offered. (Theories, measurements, and food routing have been presented to the public through magazine and newspaper articles, manufacturers' advertising, and schools of home economics, but a thorough kitchen styling service will combine the best principles and theories of kitchen planning with the correct use of many new kitchen materials which have been developed recently in response to growing "kitchen consciousness.")
4. A kitchen modernization program gives impetus to municipal and state movements to increase employment through repairing and remodelling.

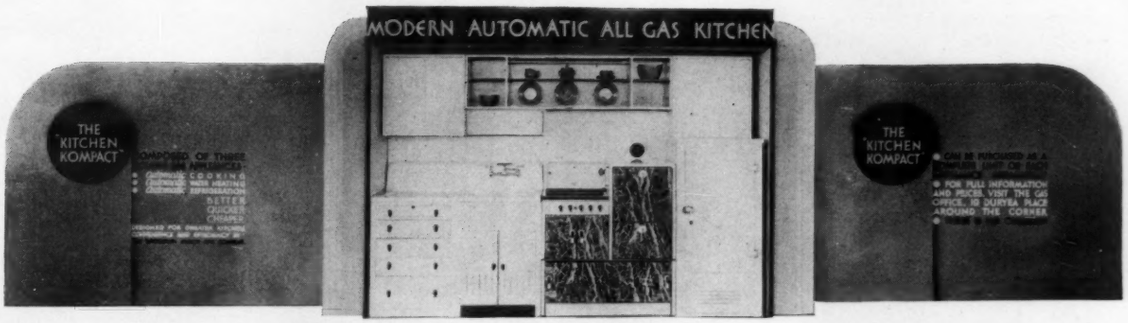
B. Suggested Ideas for an Operating Plan.

1. Model kitchen on display floor—painted footsteps on floor showing efficient routing of work.
2. Enlarged photographs of "before and after" kitchens mounted on walls of display floor. These enlargements (from best photographs obtainable) are available from the American Gas Association. Price on application.
3. Window displays of scale models of modernized kitchen—before and after—if space

Exterior view of Kitchen Planning Headquarters located in the Architects Building, Philadelphia, and sponsored by The Philadelphia Gas Works Co. with many manufacturers participating.



One of four complete kitchens located at Kitchen Planning Headquarters. Color scheme is pale yellow and tan, and all appliances are especially finished in harmonious shades.



A display featuring the Kitchen Compact unit now actively merchandised by the Brooklyn Union Gas Co. The model shown is of wood, 9 feet 3 inches long.

in Domestic Load *Promotion*

or budget will not allow a full-sized model kitchen on the display floor.

4. Kitchen modernizing contests for Women's Clubs.
   a. Each woman working on own kitchen.
   b. Limit set to total expenses.
      (1) Prices of various items furnished by gas company.
   c. Winner of contest to get range, refrigerator or cooking utensils.
5. Enclosures with gas bills.
6. Cooperation with local architects and builders.
7. Offer of sample modernized kitchen in apartments and housing developments. Sample kitchen on consignment to be purchased when apartment is rented or purchased.
8. Newspaper advertising—cuts and copy (standardized for economy and national unity) are available from the American Gas Association. Price on application.
9. Cooperation with local department stores. (Installation of model kitchen on sales floor will promote sale of all kitchen wares).
10. Lectures by Home Service on Kitchen planning.
11. Every prospective customer for range, refrigerator, laundry equipment or house heater is lead for kitchen modernization and this additional service may be the necessary inducement to make the sale.

The handbook has been prepared as a complete source of information for a kitchen styling service, and is not for the use of consumers. Information which it conveys is specific. Modern gas equipment naturally has been regarded as the nucleus of a modern kitchen plan, but essential information is given on all accessory equipment and methods of unifying kitchen elements for efficiency and harmony. Organizing company home service or other personnel for kitchen planning is covered in the contents.

Chapter heads of the handbook, indicating its complete coverage of information required in the kitchen planning program, are as follows:

Planning the Modern Kitchen
Gas Equipment
Fundamental Kitchen Equipment
Specialized Storage for Kitchen Utensils, Linens and Supplies
Accessory Equipment
Wall and Floor Covering
Lighting Fixtures and Electrical Outlets
Arrangement Which Give the Kitchen a Decorative Appearance
"Period" Kitchens
Dining Alcoves, Pantries, and Laundry Space
The Kitchenette and Apartment House Kitchen
Use of Existing Conditions in Old Kitchens
Supervision and Handling of Contracts With Other Trades
Points to Be Considered in the Letting of Contracts for Non-Gas Equipment
Methods of Presenting the Drawing, Estimate and Recommendation to the Customer
Kitchen Measurements (Vital Statistics)
Suggested Form for Information Sheets
Suggestions for Recording Dimensions
Glossary

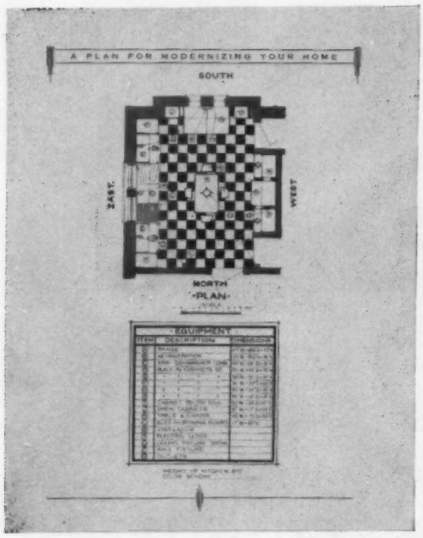
This manual is the first step in the National Directing Committee's program, which will later make available special newspaper advertising and publicity service, suggestions for exhibits, displays and direct mail material, and pamphlets for special customer distribution to promote the use of kitchen styling services. Orders for the booklet, which sells at $3, may be placed with the secretary, National Directing Committee of Executives, A.G.A., 420 Lexington Avenue, New York.

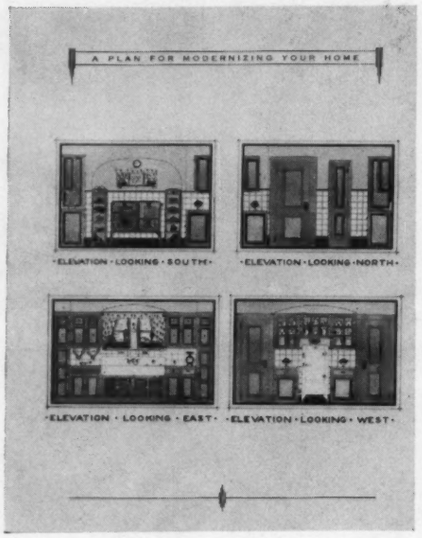
A FEW outstanding kitchen styling plans are already being operated, and *Western Gas* summarizes three of them in the pages immediately following. Information presented is secured from contributions to the symposium on kitchen modernization before the A.G.A. Commercial Section in Chicago, supplemented by additional material from several of the speakers.

One of the most progressive applications of the idea has been made by The Philadelphia Gas Works Co. R. A. Malony of the Philadelphia company, participating in the A.G.A. Convention symposium, described his company's recently inaugurated Kitchen Planning Headquarters.

A space in the local Architects' Building had previously been contracted for by the gas company and devoted to a gas appliance exhibit. Additional space was secured, through the cooperation of kitchen equipment manufacturers and dealers, and four complete kitchens, an office for the consultant in charge, and a reception room now constitute the Kitchen Planning Headquarters sponsored by the gas company. The exhibit was opened to the public in September. Other kitchens will be installed later, and a waiting list of manufacturers who are willing to underwrite the costs for these additional kitchens has already been formed.

This Kitchen Planning Headquarters was the outgrowth of the company's early efforts to interest building operators and apartment house owners in modernizing obsolete kitchens. It was at once evident that close cooperation was called for with suppliers of kitchen equipment other than gas appliances,




A PLAN FOR MODERNIZING YOUR HOME
ELEVATION · LOOKING · SOUTH
ELEVATION · LOOKING · NORTH
ELEVATION · LOOKING · EAST
ELEVATION · LOOKING · WEST

At the left are reproduced two pages from an individual home modernizing proposal booklet prepared by the Home Modernizing Bureau of Central Hudson Gas and Electric Corp., Poughkeepsie, New York, for a customer interested in re-styling her kitchen. Floor plan appears at left, and four elevations at the right. In the original both the plan and elevations are beautifully water colored to reproduce the proposed color scheme exactly.

such as cabinets, fixtures and miscellaneous furniture. The tendency of the prospect to shop around was another obstacle to selling kitchen modernization. Furthermore, it was apparent that the gas company must maintain full cooperation with all kitchen equipment suppliers, without favoritism. Kitchen Planning Headquarters was the answer.

Some 30 manufacturers are already represented in the present model kitchens at the Headquarters, and are helping to defray rental costs. Care has been taken to subordinate the commercial sales atmosphere and no advertisements or signs are displayed in the exhibit. Information on the individual lines may be secured from the consultant in charge, who is also thoroughly trained in the advantages and use of gas appliances. Approximate costs for a kitchen modernization project are provided the housewife or architect at the headquarters and there is no need for shopping around, either for prices or ideas.

As a part of the Kitchen Planning Headquarters' service individual kitchen plans are furnished, incorporating the prospect's personal ideas on layout and equipment. To eliminate a flood of requests for individual plans from the merely curious, and restrict the service to prospects who are definitely interested in modernizing their kitchen, the following method was adopted.

Anyone applying to the kitchen consultant for a kitchen plan is given a cross section sheet on which are printed suggestions for obtaining the measurements of her kitchen. The prospect is requested to obtain these dimensions and roughly sketch the design of her kitchen. This rough sketch is then returned to the kitchen consultant and a finished plan is submitted. The prospect is, of course, urged to express any preference she may have either for the color scheme, gas equipment or other units included in the plan. At the time this dimensional sheet is furnished to the prospect, the name and address is taken, and if she fails to return the sketch within a certain period she is contacted by telephone. Should she require assistance a Home Service representative is sent to her home. It is felt that any woman who goes to the trouble of furnishing the information required on this sheet would do so only if she were defintiely interested in modernizing her kitchen.

Immediately upon presentation of the finished plan to a prospect, the name is turned over to the sales department and a call is made by the salesman in whose district the prospect resides. If the prospect has indicated no preference for any particular make of cabinet, floor covering, or other kitchen equipment, her name is given to one of the cabinet manufacturers and floor covering dealers represented in the exhibit, all of whom receive leads on a rotating schedule. Only one manufacturer of each kitchen unit is furnished the name of each prospect, in order to avoid the annoyance of two or three manufacturers contacting the prospect for the same type of equipment.

Should the prospect then decide to order any equipment, the sizes that she specified in her original sketch are checked by the manufacturer who obtains the order. The gas company does not accept responsibility for the completed job, although it attempts to settle any difference between the manufacturer and the customer.

To promote the use of the Headquarters the company will employ newspaper advertising, radio, bill enclosures, store and window displays; also several of the participating manufacturers who use national advertising are enclosing a leaflet about the exhibit with all replies to inquiries received from the Philadelphia area. Local manufacturers and dealers are likewise referring their prospects to the displays.

To supplement the Kitchen Planning Headquarters, The Philadelphia Gas Works Co. has also installed model all-gas kitchens in several of the large Philadelphia department stores, and increased department store sales of gas ranges and other kitchen equipment has already resulted. Daily cooking demonstrations are under way in one of the department store model kitchens.

Wherever remodeling of real estate property is being done in a large way, such as through insurance companies or trust companies, the gas company endeavors to install model gas kitchens in the remodelled homes. Neighborhood demonstrations are also planned through the use of a specially built automobile trailer representing a colonial brick house on the exterior and fitted inside as a complete model all-gas kitchen.

Since the Philadelphia company has been concentrating upon promoting the all-gas kitchen it is already noted a lessening in electric range competition, and a greatly increased sale of gas ranges and gas refrigerators.

HOME modernization service of the Central Hudson Gas and Electric Corp., Poughkeepsie, N. Y., has been highly individualized under the direction of the company's home service department. Ruth Kleinmaier, home service director of the company and chairman of the 1933 A.G.A. Home Service Committee, participating in the kitchen modernization symposium at Chicago, assigned three motives for establishing a Home Modernizing Bureau:

(1) The service is of definite interest to the customer for it represents expert advice on a subject which is part of her everyday life, making her work more efficient and more interesting. (2) It creates in the customer's mind a

desire to have modern gas appliances operating in her home, thus aiding company and dealer sales. (3) This service, being without charge, creates a friendly feeling between customer and gas company.

It is this company's experience that highly desirable publicity centering about its Home Modernizing Bureau may be given through newspaper advertising, articles, modern kitchen displays in company and dealer stores, talks to women's clubs and other groups, and educating company employees, dealers and salesmen.

Modernizing proposals for individual customers' kitchens are carefully thought out and effectively styled by the Central Hudson G. and E. Home Modernizing Bureau. Judging from the sample sent *Western Gas* by Miss Kleinmaier these proposal booklets should find a warm reception in the homes for which they are designed. They are presented in a loose-leaf binder, the front cover of which carries a simple sketch of an attractive home exterior and the title "A Plan for Modernizing Your Home." Individual title pages with each booklet present this text:

A PROPOSAL FOR MODERNIZING
THE KITCHEN OF

JOHN DOE

111 First Street
Poughkeepsie
N. Y.

PREPARED BY HOME MODERNIZING BUREAU
CENTRAL HUDSON GAS & ELECTRIC CORP.

A second page is devoted to a brief foreword presenting the plan book as a tangible picturization of the consumer's own ideas on kitchen modernization, referring specifically to the automatic range, water heater and refrigerator, and closing with attention to the company's "complete home plan" which makes possible installment financing of the modernized kitchen.

With this article we reproduce a floor plan of the kitchen, and separate elevations of the four sides of the room. These floor plans and elevations, and also pages devoted to each of the individual appliances in which the prospect is interested, are prepared in color by the company's drafting department under the supervision of the home service director.

Procedure for preparing the booklet for an individual home is as follows:

(1) A visit to the customer's home is made to obtain all necessary information, this being secured by dealer, salesman, or home service representative. It is then checked by the home service representative in whose district the customer is located and sent to the general office for completion. A form is provided for recording the essential information.

(2) When the plan is received in the general office the name, address, date to be returned and person to whom it is to be sent is noted, and the drafting department then goes to work.

(3) Upon completion the plan is checked and returned to the district where it originated. It is then returned for presentation to the customer as her own personal book.

(4) A careful record of each plan is kept as to time received, new appliances suggested in the plan, and the appliances the customer finally purchases.

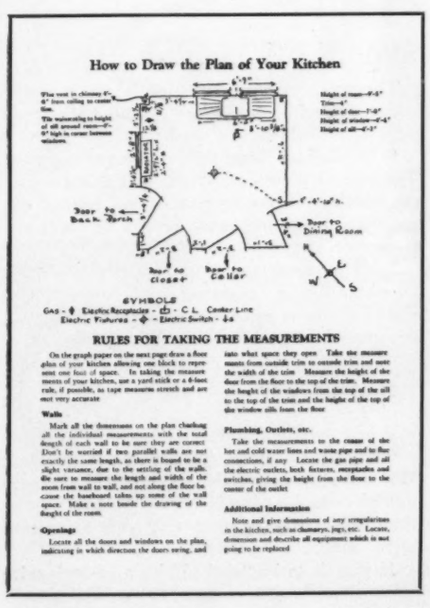
This company's use of its home modernizing bureau is not limited to kitchen modernization. Proposal booklets are adapted to bathroom or basement modernizing, being very useful in sale of gas house heating. Check-ups have shown that the plans are prized in the homes for which they are prepared, serving to guide workmen while modernization is under way, and being displayed permanently in the home after the project is complete.

KITCHEN planning service is already an integral part in the new business promotion plan of the Brooklyn Union Gas Co. Hugh Cuthrell, manager of the new business department for Brooklyn Union, has provided *Western Gas* with a few highlights of his plan which he styles as "repackaging" the advantages of gas fuel and the benefits of gas appliances. Mr. Cuthrell participated in the A.G.A. convention forum on kitchen modernization.

In Brooklyn a modern, efficient and attractive kitchen unit making use of modern gas appliances is being merchandised, known as the Kitchen Compact.

For the customer interested in kitchen modernizing the Brooklyn company's kitchen planning group prepares a floor plan and elevations in color. It also shows the customer samples of the various materials to be used, with estimates of their cost. As an instance showing the extent to which the company goes in securing this information, Mr. Cuthrell cites the case of a typical customer for whom the following estimates were made:

(Continued on Page 34)


How to Draw the Plan of Your Kitchen

SYMBOLS
Gas - ◆ Electric Receptacles - ⊟ - C.L. Center Line
Electric Fixtures - ✤ - Electric Switch - $_{ES}$

RULES FOR TAKING THE MEASUREMENTS

On the graph paper on the next page draw a floor plan of your kitchen allowing one block to represent one foot of space. In taking the measurements of your kitchen, use a yard stick or a 6-foot rule, if possible, as tape measures stretch and are not very accurate

Walls

Mark all the dimensions on the plan checking all the individual measurements with the total length of each wall to be sure they are correct. Don't be worried if two parallel walls are not exactly the same length, as there is bound to be a slight variance, due to the settling of the walls. Be sure to measure the length and width of the room from wall to wall, and not along the floor because the baseboard takes up some of the wall space. Make a note beside the drawing of the height of the room.

Openings

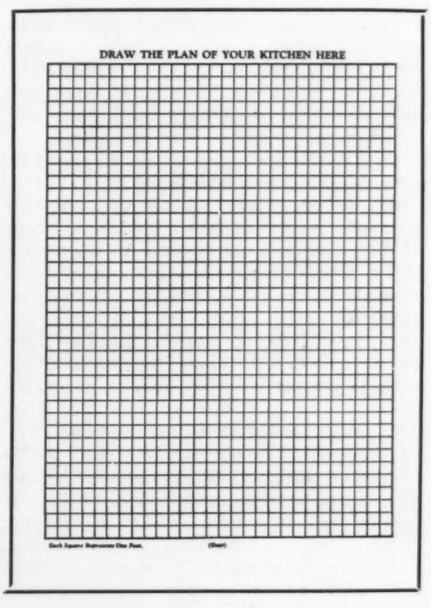
Locate all the doors and windows on the plan, indicating in which direction the doors swing, and into what space they open. Take the measurements from outside trim to outside trim and note the width of the trim. Measure the height of the door from the floor to the top of the trim. Measure the height of the windows from the top of the sill to the top of the trim and the height of the top of the window sills from the floor

Plumbing, Outlets, etc.

Take the measurements to the center of the hot and cold water lines and waste pipe and to flue connections, if any. Locate the gas pipe and all the electric outlets, both fixtures, receptacles and switches, giving the height from the floor to the center of the outlet

Additional Information

Note and give dimensions of any irregularities in the kitchen, such as chimneys, jogs, etc. Locate, dimension and describe all equipment which is not going to be replaced


DRAW THE PLAN OF YOUR KITCHEN HERE

Each Square Represents One Foot.

If you will fill in the following information, it will help the Kitchen Planning Headquarters in making your kitchen the most practical for your needs

INFORMATION ON PRESENT CONDITION OF KITCHEN

INFORMATION ON THE USE OF YOUR KITCHEN

Please sign your name and address on the front of this folder and mail in the enclosed envelope to:

KITCHEN PLANNING HEADQUARTERS
Second Floor, Architects Building, 17th and Sansom Streets
PHILADELPHIA, PA.

Three pages from a leaflet distributed to kitchen modernization prospects by The Philadelphia Gas Works Co. On the ruled page shown at center the prospect draws the plan of her present kitchen to scale.

Safe Practice *in* Transmission Line Construction *and* Maintenance

WITH the present construction of several transmission lines under way the subject of safety in line-laying and maintenance takes on new importance. Some time ago a safety study was conducted by the Natural Gas Department of the American Gas Association, with the cooperation of numerous natural gas companies, and the resulting statement of what constitutes good safety practice should be of deep interest to anyone engaged in a supervisory capacity in the handling of pipe.

For convenience the conclusions are set forth under the heading of principal operations involved in line construction and maintenance work.

UNLOADING FROM CARS

There are several methods of unloading pipe from cars in general use, the particular method depending on conditions, such as size of pipe being unloaded, location, etc., and each method has its own particular hazards. There are some general practices that can be noted:

1. If using a crane or gin pole, use ¾ inch steel cable slings instead of rope or chains. The use of chain slings has resulted in many injuries due to chain failures. A rope sling made of new rope is safer than a chain, but the rope soon becomes rotten, with a resulting failure. The steel cable sling is much the safest and in the long run the most economical.

2. Care should be taken in putting the slings around the lift, so that men do not get caught. The men who put on the slings should leave the car before the lift is made, so they will be out of danger if the lift breaks loose, and also to prevent them from getting caught between a swinging load and the car body.

3. Spreaders should be used between the slings; otherwise the sling may slip to the center of the load causing it to kick-up and slip out of the slings.

4. Some one man should be designated to give all signals to raise and lower the load. The signal man should be sure that the load is properly hooked on and that everybody is clear before a signal is given to raise or lower. Many bad accidents occur because the signal man takes it for granted that everything is as it should be.

5. If skids are used from the car to the pipe pile, they should be sufficiently strong to carry the load. The best practice demands pipe skids so made that they can be securely fastened to the side of the car. Skids made of good straight grained hard wood are perhaps permissible, but many serious accidents have occurred through the use of defective wooden skids.

If the skids are long enough to have much "spring," they should be supported under the center. Skids should be so spaced that the ends of an average length joint will extend about 4 feet over the skids on each end.

Men should not be permitted to stand between the skids. Except when handling small size pipe, men should not be permitted between the pipe pile and the car. The joints should be snubbed down the skids by a rope at each end.

6. If pipe is loaded above the sides of the car, care should be taken in removing the side stakes. It is good practice to cut the cross wires and remove the two end uprights, replacing them with good hardwood uprights before cutting the cross wires on the two center uprights. If all the cross wires are cut, the failure of defective uprights may cause a serious accident.

LOADING AND UNLOADING PIPE ON TRUCKS OR WAGONS

Many injuries occur from slipping skids, broken skids, cut hands and mashed fingers while loading pipe on trucks or wagons. The following practices, if followed, will not only prevent most of such injuries but will speed up the work and make it easier.

1. Trucks or wagons should be placed as near the pipe pile as possible.

2. Pipe should be handled with substantial clubs, instead of taking hold of the ends of the joints with the hands. A pick handle makes a good club for this purpose. By this method all cut and mashed fingers are avoided.

3. Each joint of pipe in the first layer on the truck bed should be "chocked" in place to prevent it rolling back on the workers.

4. Skids should be so designed that they can be secured to the bolster or bed of the wagon or truck. Skids should be of proper size and material to carry their load. Serious injuries are caused by falling or breaking skids.

5. Side stakes should be of good material and should fit their sockets securely. Broken side stakes can cause serious accidents.

6. The space around pipe piles where loading is to be done should be clear of all rubbish, thread protectors, etc. This will eliminate any stumbling hazard. The driveway should be kept clear of all skids, pipe, etc. Skids kicked up by truck wheels are very likely to cause accidents.

7. Skids should always be used when loading pipe. Lifting by hand or jerking up with a wrench is a dangerous practice.

8. No workman should be allowed on the load when loading pipe. Mashed feet or a fall from the load is an ever present danger if such practice is followed.

UNLOADING FROM TRUCKS

The same practice as in loading should be used.

1. Always use skids.

2. When letting pipe down skids, ease it down with ropes near each end of the joint. Dead-end one end of each rope to the body of the truck. Carry the free end over the load and have ropes long enough to let the men holding the ropes work from the side of the truck opposite the skids.

3. Be sure bottom layer of pipe is well blocked on truck body before removing side stakes.

4. Never drop a joint of pipe from the truck to the ground.

CARRYING PIPE

The work of carrying pipe is much easier and most accidents can be prevented if proper tools and methods are used.

1. Carrying irons should always be used. The use of pieces of board, pick handles, or the placing of the fingers in the end of the joint is dangerous and results in accident sooner or later.

2. The gang carrying pipe should work together lifting, carrying and lowering on signal given by some one member of the gang designated to perform this duty.

STRINGING PIPE

When possible, pipe is strung on the right-of-way direct from the trucks or wagons. When the nature of the ground will not permit of this, the pipe is either "snaked" along the right-of-way by tractor or team or carried in by hand.

If pipe is to be "snaked" in, a ¾-inch wire cable should be used rather than a chain.

A broken chain caused by the pipe catching on some obstruction on the right-of-way

(Continued on Page 30)

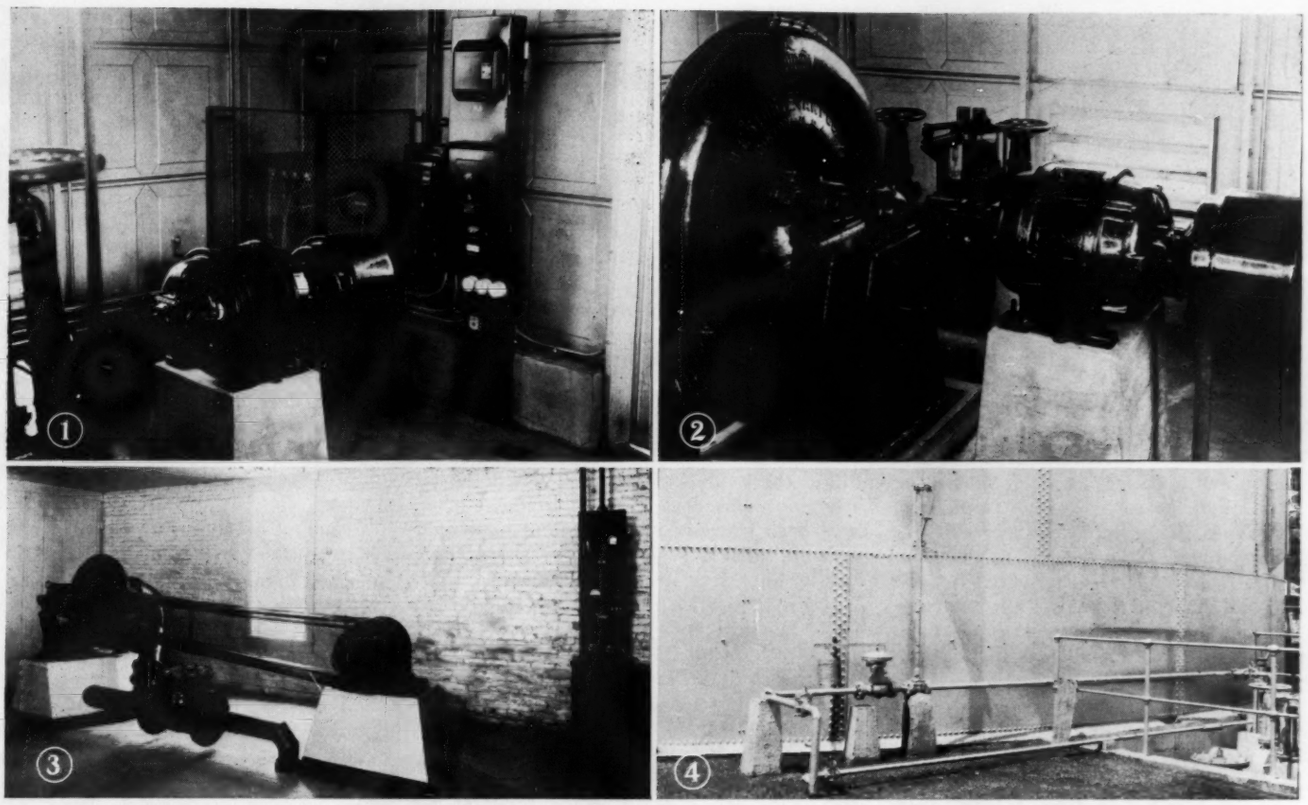


FIG. 1. Variable speed motor and electrical installation for the No. 8 booster at P. G. and E.'s 200,000 cu. ft. holder, Chico, Calif. FIG. 2. Showing installation of No. 8 booster and Thrustor valve for the 200,000 cu. ft. holder. FIG. 3. No. 6 booster for the 100,000 cu. ft. holder at Chico. FIG. 4. Holder shut-off valve and back-pressure regulator for the 200,000 cu. ft. holder.

Two Low Pressure Holders Operated Automatically *at* Chico

By HARRY J. SMITH

Engineer of Construction, Department of Gas Construction and Operation, Pacific Gas and Electric Company

AUTOMATIC control of holders and boosters on the Pacific Gas and Electric Co.'s distribution system at Chico, California, has been inaugurated with considerable success, making it possible to take care of peak load requirements without an attendant, and introducing other operating advantages.

Harry J. Smith

Before dealing with the automatic control system at Chico it will be well to supply a few details on the town's gas supply and storage facilities. The town of Chico receives its gas supply from the Marysville gas plant, Marysville, Calif. The gas manufactured at this plant is a carburetted water gas and is delivered to Chico through a transmission line 48 miles in length consisting of 26 miles of 8-inch pipe to Oroville junction and 22 miles of 6-inch pipe to Chico.

Upon the completion of the transmission line the oil gas plant at Chico was shut down and dismantled, leaving two low pressure, telescopic waterseal holders and these holders are located three blocks apart. At each of the holder sites is a low pressure booster.

One of these holders has a capacity of 200,000 cubic feet, having two lifts, and when fully cupped has a pressure of 10.5 inches of water column. The other holder has a capacity of 100,000 cubic feet, also having two lifts, and when fully cupped has a pressure of 5.75 inches of water column.

The booster at the 200,000 cubic foot holder site is a No. 8, extra heavy design, and is direct connected to a 25-horsepower, variable speed motor, 1800 revolutions per minute synchronous speed, 80 per cent speed reduction, 440 volts, 3-phase, 60-cycle, developing a boost of 12 inches of water column over and above the holder pressure. Fig. 1 and Fig. 2 show this installation.

At the 100,000 cubic foot holder site is a No. 6 booster, belt connected to a 15-horsepower, induction motor, 220-volts, 3-phase, 60-cycle and 1200 revolutions per minute synchronous speed. The pulley diameters are of sizes to give the booster a speed of 1870 revolutions per minute, developing a boost of 8½

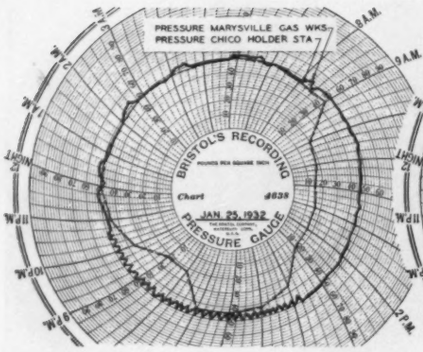


Fig. 6.

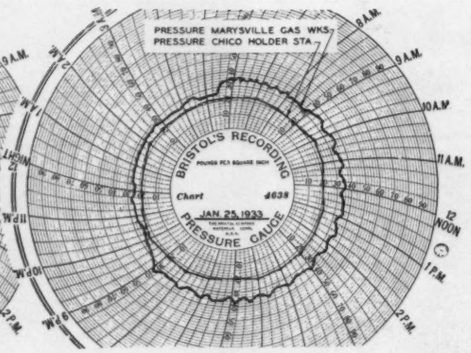


Fig. 7.

inches of water column over and above the holder pressure. Fig. 3 shows this installation.

Due to the difference in pressure of these holders, the gas from the 100,000 cubic foot holder is delivered to the 200,000 cubic foot holder, through a 6-inch pipe line connecting these two holders, at a rate of about 20,000 cubic feet per hour.

Practically all of the gas delivered to the town is low pressure at 10 inches of water column. The 200,000 cubic foot holder, having a pressure slightly greater than the distribution pressure when fully cupped, is controlled through a 12-inch low pressure regulator connected in series with the booster.

The transmission line from Marysville delivers gas to the two low pressure holders. Each of the holders has a back pressure regulator set for 20 pounds gauge, and when the transmission line pressure drops to 20 pounds gauge, the back pressure regulator shuts off, thereby cutting off the supply of gas to the holders.

The holders are also equipped with shut-off valves, so that when the holders are full, the valve automatically shuts off the gas irrespective of the pressure in the transmission line. A plug valve is used for this purpose and a rod is connected to the stem and at the other end a flat bar ½ inch x 3 inches is welded to this rod. To the upper end of this bar is welded a round rod and this entire arrangement is hung from the first row of horizontal girders with ball bearings top and bottom to take the upward and downward thrust. The ½ inch x 3 inch bar has a twist of 90 degrees and this passes through a plate, fastened to the gooseneck of the second lift, so that when the holder is nearly full the valve shuts off.

When the demand for gas is greater than the transmission line can supply, the valve starts to open when gas is drawn from the 200,000 cubic foot holder. When the pressure in the transmission line is greater than 20 pounds, the back pressure regulator opens and allows the gas to flow into the holder. This makes an ideal arrangement for filling the holder without the use of an attendant and does a much better job. The back pressure regulator and holder shut-off valve are shown in Fig. 4.

The automatic feature of this installation is that when the second lift of the 200,000 cubic foot telescopic holder is about to land on the landing beams, the float switch under the walkway, as shown in Fig. 5, is tripped, thus starting this variable speed motor driven booster through the automatic magnetic switch. As this is a variable speed installation, the controller is set at some predetermined speed so that a pressure will be developed for boosting through the low pressure regulator and this regulator maintains a pressure of 10 inches of water column to the distribution system.

At the same time the float switch, operating the variable speed booster, opens the 6-inch single seat Thrustor motor operated valve, shown in Fig. 2. Also the booster at the 100,000 cubic foot low pressure holder is started through an automatic compensator, so that the gas can be boosted over to the 200,000 cubic foot holder through the 6-inch pipe line connecting these two holders.

When gas is drawn from the 100,000 cubic foot holder, the shut-off valve in this holder opens so that this holder can receive gas from the transmission line, provided the back pressure regulator is opened. This regulator can only open when the pressure in the transmission line is 20 pounds gauge and above.

In case there is no delivery of gas from the transmission line, and all of the gas in the 100,000 cubic foot holder has been delivered to the 200,000 cubic foot holder and when the upper lift is about two feet off the landing beams, a float switch on this 100,000 cubic foot holder trips and shuts down the booster and the Thrustor motor operated valve. In case this Thrustor valve does not close, a check valve with a featherweight disc has been installed, as shown in Fig. 3, so as to prevent the gas in the 200,000 cubic foot holder from flowing back to the 100,000 cubic foot holder.

The variable speed booster at the 200,000 cubic foot holder remains in operation and does not shut down until the second lift leaves the landing beams, thereby allowing the counterweight on the float switch to trip this switch and through this operation shuts down the booster. The 200,000 cubic foot holder when fully cupped gives sufficient pressure through the low pressure regulator for distribution requirements.

The float switch above the walkway on the 200,000 cubic foot holder, as shown in Fig. 5, is installed to shut down all equipment when the upper lift is about 3 feet off the landing beams. This float switch is a safety precaution but does not take the holder off the town; it merely protects the crown from damage.

The piping is so arranged that any piece of equipment can be by-passed in order that hand regulation can be resorted to. The booster at the 100,000 cubic foot holder can deliver gas to the distribution system in case the 200,000 cubic foot holder should be out of service and this operation would be hand controlled.

The pressure chart, Fig. 6, shows the pressures that were necessary at Marysville and Chico on January 25, 1932, and the gas delivered to Chico was 496,300 cubic feet on this day. It was necessary to maintain 50 pounds gauge pressure at Marysville in order to take care of the demand.

With automatic operation of the holders at Chico, the pressure at Marysville was greatly reduced and the pressure at Chico was uniform throughout the day, as shown on the pressure chart, Fig. 7, January 25, 1933, thereby reducing the

(Continued on Page 41)

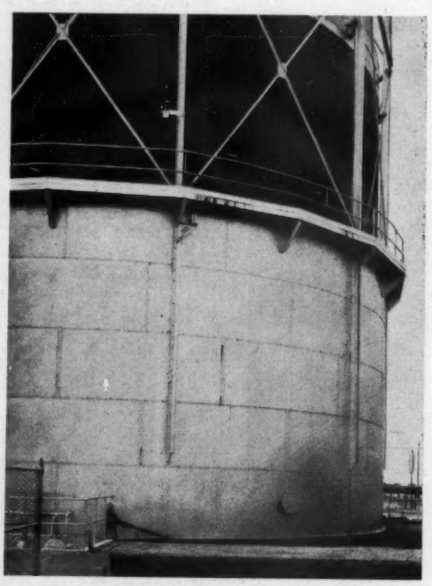


Fig. 5. Showing float switches mounted on the 200,000 cu. ft. holder.

Gas Refrigerator Promotion *in* Southern California

AS IN every section of the country, the air-cooled unit has revolutionized the gas refrigeration sales outlook in Southern California. Recent months have seen the utilities in this area capitalizing in a major way the promotional efforts of past years. Mr. Banks describes refrigeration sales policies in this address given September 27 before the Commercial Section of the American Gas Association at Chicago, with special reference to methods followed in building up dealer outlets for the gas refrigerator.—Editor.

By F. M. BANKS

General Superintendent of Sales
Southern California Gas Company

IN common with the country generally the Coast has been trying to capitalize the gas refrigerator. Through the past few years it has been a considerable problem to conceive of, and to acquire a profitable market of any size from refrigeration. The relatively high cost of water was an ever present deterrent, particularly in the hands of competitors who used it in their competitive arguments. In many cases warm water supplies in the summer season further exaggerated the water problem, and the supply was sometimes not free from foreign matter, all of which has constituted a considerable obstacle. In addition, the servicing problem, whether normally or abnormally caused, in a widely scattered territory, has been an expensive one to care for. As a further hindrance in one city an old ordinance prohibiting the use of water for cooling refrigeration machinery without employment of cooling towers, was invoked against the domestic gas refrigerator. This has been overcome, but only comparatively recently.

Neither did apartment house usage receive acceptance upon any reasonable scale. No ordinances restricted multiple "hook up" of electrical systems. To further inhibit acceptance, the City of Los Angeles required, and still requires, that the water connection from refrigerator to sewer waste line be a broken connection to prevent a possibility of reversal of flow contaminating the water supply. This increased the expense of installation, was unsightly and often resulted in stoppage from algea growth.

EASIER SELLING, MORE PROFIT FROM AIR-COOLED UNIT

With the advent of the air-cooled unit the outlook has been most materially changed. Gone is the greatest single argument of the competitors of gas refrigeration. Gone is the expensive installation. The servicing cost has materially decreased, while the amount of gas used annually by a refrigerator has decreased only slightly. Hence the natural gas utility now has some margin for direct profit from the volume of gas sold for refrigeration. Previously, if a refrigerator used 12,000 cubic feet per annum at a price of 70 cents a thousand, the gross revenue from a refrigerator was $8.40. If the additive costs arising from servicing refrigerators in such a scattered territory was between five and six dollars the load was far from interesting in the aggregate. Now, however, with the air-cooled refrigerator using gas at the rate of 10.5 thousand cubic feet per annum, let us say, the gross return is still $7.35, which is seven-eighths of the former gross. Meanwhile if servicing costs can be reduced in the neighborhood of 50 per cent the gross spread resultant from the refrigeration load will be augmented by 50 to 75 per cent.

With the spread between gross income and out-of-pocket servicing costs so materially improved, and with many of the deterrents to acquiring a fair volume removed, it has been much easier to demonstrate to utility management the value of a more thorough promotional program. Of course, even under former conditions, natural gas utilities which are operating under circumstances similar to those which I have employed above have not been unmindful of less direct and doubtless even more far reaching benefits accruing from the promotion of gas refrigeration. Many have held the opinion that some natural gas utilities have been short sighted in not giving due weight to the value of the refrigerator as a factor for appealing to the public mind, either to engender a greater degree of appreciation for the gas industry as a modern industry or more directly, in not using the refrigerator's low operating cost as an opening wedge to maintain or obtain the cooking load. Such is not the case. In fact, such relatively indirect benefits have been the principal if not the sole motive for any effort in support and development of a refrigeration market. Appropriations of money for any purpose have required ample justification in recent months, but particularly under these circumstances it has not always been an easy task to develop a thorough-going program of promotion while there were many who questioned the tangible results which would be obtained.

RETAIL OUTLETS DOUBLED

With the air-cooled unit a reality the utilities in Southern California were able to put new programs into operation, as did utilities generally throughout the country. Acting in capacity of distributors, the Southern California Gas Co. and the Southern Counties Gas Co. arranged to double the retail dealer outlets in and near the Los Angeles area. This activity, which has been carried on for two years by one of the companies in Los Angeles, enfranchised dealers as agencies. Each retailer, in many cases merchant plumbers, is required to purchase at least one refrigerator for display, and whenever possible, to have it in operation. Display purchases may be made on terms or for cash, at a maximum discount. If a

dealer wishes to finance a sale himself he may purchase the refrigerator for cash, 10 days at the same maximum discount. However, since the majority of sales for such equipment are not made as cash sales, the more normal procedure is that a dealer contracts with a customer on one of the assignment contract forms supplied by the utility. When the sale is made the contract is accepted for assignment by the utility, after the usual credit inspection. Maintenance of identical terms, prices and interest rates is thus assured throughout the district. Upon such sales the dealer earns a discount slightly smaller than for a sale which he finances himself.

Occasionally a dealer, for any one of several reasons, may find it impossible or difficult to close a sale himself. If he so desires he may report the prospect and if closed by a utility salesman, he is paid a commission which is considerably smaller than the term sale discount, but is still sufficient to be worthwhile. Some variations of the plan have been made, particularly in smaller communities, in order to prevent serious competition between utility salesmen and dealer salesmen.

In order to conduct dealer activities effectively, refrigeration specialists have been assigned to this wholesaling business. These men establish the retailers initially, and are responsible for seeing that their displays are set up and maintained and operating.

DEALERS STAND ON OWN FEET

It has become an unfortunate practice among distributors of some gas appliances to do most of the contact and selling work for their dealers. I have in mind the case of some water heater distributors who sell through merchant plumbers as their dealers, largely because the average customer calls a plumber when a water heater begins to leak or is otherwise unserviceable. Since the majority of the water heater business in Southern California consists of replacing old automatic storage gas water heaters, one may see the reason for establishing plumbers, as dealers generally. However, since there are a number of water heater companies in the field, each anxious for a share of the business as large as he can obtain, the matter of competition among distributors for the best dealers, or for the other fellow's dealers soon become serious. It was not long before dealers were importuned to discontinue one line and take on another, led to do so by some added inducement as to discount or perhaps by the offer of repair business on all heaters of that make in a specified area. In any event, after a few changes some of the dealers became aware of the fact that they needed to do a little work in the field. The current distributor, so desirous of continuing him as a dealer, would turn over sales which the distributor's men had made. This was supposed to indicate the facility with which that particular water heater could be sold, or to demonstrate the public demand for it. Of course its effect was not entirely beneficial because some of the dealers came to feel that it was their right to expect the distributor to sell the equipment and turn the sale over to him. I have known of cases in which the dealer made no effort whatsoever to sell a water heater. Instead, upon recipt of a trouble call he merely ascertained the condition of the heater, and if it appeared that a new one was needed or might be sold, he at once called the distributor to have him send a salesman to that address to make the sale. One might suppose that the distributors would tire of such work, but that is not the case, for a simple reason. As business became worse, it was increasingly important that he be apprised of water heaters no longer serviceable. He winked at the action of his dealers, and paid the discounts as a consideration for notice of the old heater being worn out. Of course I do not mean to imply by any means that all water heater dealers worked in that manner, but I do mean that the habit had become far too common for good promotional results.

If we were to employ those same outlets as refrigeration dealers it was important that we be able to capitalize upon the good sales training work which some of the manufacturers had done, and add to the sales ability of such men. In consequence, the utility policy has been not to become "closers" for dealers as a general rule. Men assigned to that work do assist their dealers in the start, and will always assist on particularly difficult sales, but they do not spend much time with the dealer who expects his business on a platter. Of course, since there is no other gas refrigerator available in the area, and since the plumbers do not yet handle any volume of electric refrigerators, they have a more logical incentive to become sellers if they are to profit. Then for those who cannot accomplish the actual selling work there is a provision under the plan to compensate adequately for that amount of service which they can perform.

DEALER SALES TRAINING

In order to be of assistance in sales training, several series of night refrigeration meetings have been held for dealers. In these meetings such subjects are treated as:

(a) Facts about refrigeration.
(b) Facts about gas refrigeration.
(c) Sales methods.
(d) Installation and operation.

During a series, sales material is provided and its use demonstrated.

For the purpose of insuring good installation and satisfactory operation, standard installation diagrams are provided for the dealers to follow. It is interesting to note that on the average the work done by the dealers has been quite up to standard, as evidenced by the report of inspection which is made of each installation by the distribution department of the utility before the sale is considered closed and the account commissionable. Naturally we have some dealers who have expected to have refrigeration business walk in the door. For them the business has been a disappointment. But others have gone into the field themselves, and have placed sales forces in the field as they have seldom done for other equipment. It appears unquestioned that refrigeration selling has opened the way to a greater degree of field selling of other gas appliances in a way that nothing else has done before. Some of our refrigerator dealers have undertaken field selling of furnaces, particularly of floor furnaces, to replace less adequate gas equipment. As more dealers have been established, or as it has been necessary to change dealers, new series of meetings have been conducted. In the case of dealers who maintain a number of inside salesmen as well as field salesmen it has been found advantageous to conduct meetings for them on their premises. It is quite gratifying to see 125 to 150 dealer men turn out at night for a series of meetings, and to put into practice what they have learned.

As a further step in air-cooled refrigerator promotion, one company has placed a refrigeration specialist in each division outside of the city of Los Angeles. These men are responsible for dealer sales as well as for sales made by utility salesmen. Their compensation is increased by the same amount whether a sale is made by dealer or by utility salesman. Such specialists operate under the supervision of the division sales managers, who are usually compensated by straight salary or salary and small commission bonus.

As a follow up of all meetings the utility issues regular bulletins to dealers. By working arrangement with one of the gas utilities which does not sell merchandise, several of the refrigerator dealers maintain displays on the floors of the branch offices of that company. As a further aid, that utility has developed a very active employee lead system for the assistance of the refrigerator dealers operating in its territory. This year dealers' sales have increased 650 percent. So wide spread has the demand for gas refrigeration become that we have had requests for dealer franchises from a number of the larger department

(Continued on Page 38)

Pacific Coast Gas Association

Managing Director: Clifford Johnstone
Association Headquarters:
447 Sutter Street, San Francisco

President: George P. Egleston
General Manager, H. R. Basford Co.,
San Francisco

Manufacturers Code Approved in Calif.

THE Water Heater and Warm Air Heating Divisions of the Manufacturers Section were successful in having Codes of Fair Competition approved by the State of California, effective on September 29.

The Code is in three sections, a basic code applicable to both the Water Heater and Warm Air Heating industries containing general provisions, and two supplements, one for the water heater industry and the other for the warm air heating industry.

The basic code is very similar to the national code filed at Washington by the Gas Appliance Institute. The supplements go into considerable detail in setting up rules and regulations and price fixing systems for their respective industries.

As is natural, such a revolutionary change in business methods as is occasioned by these codes, has created some difficulty in the industry largely because of the time necessary to familiarize all branches of the industry with their provisions.

Publications Received by Association

"Government Competition with Private Enterprise"—Report of Special House of Representatives Committee to Investigate Government Competition with Private Enterprise.

"Private Utility Valuations"—The American Appraisal Co.

"Wrought Iron and Wrought Steel Pipe Valves and Fittings"—Simplified Practice Recommendation. (Second Edition issued March 10, 1933.)

"Gas Appliance Service Range Manual"—American Gas Association.

"Fire Prevention and Fire Protection for Manufactured Gas Properties"—Joint Report of American Gas Association, American Transit Association, Edison Electric Institute.

"Standard Heats for Bomb Calorimetry" by E. W. Washburn. Research Paper No. 546, U. S. Bureau of Standards.

"Limits of Inflammability of Natural Gases Containing High Percentages of Carbon Dioxide and Nitrogen"—G. W. Jones and R. E. Kennedy, R. I. 3216, U. S. Bureau of Mines.

"Petroleum and Natural Gas Studies of the U. S. Bureau of Mines"—H. C. Fowler, I. C. 6737, U. S. Bureau of Mines.

"The Effect of Altitude on the Limits of Safe Operation of Gas Appliances"—J. H. Eiseman, F. A. Smith and C. J. Merritt. Research Paper No. 553, U. S. Bureau of Standards.

"Modern Kitchens—A Handbook for Design and Construction"—American Gas Association.

Organization Conference, Nov. 23 and 24

THE annual organization conference of Pacific Coast Gas Association sections will take place in San Francisco on November 23 and 24. November 23 will be devoted to committee meetings as called by chairmen, preparatory to section meetings on the morning of November 24. A general program with outstanding speakers covering important topics of the day will be held at a luncheon meeting at noon on that day, this program extending well into the afternoon. All meetings on the 24th will take place at the Palace Hotel.

The purpose of this conference is to perfect the organization of the various sections upon which much work has already been done by section chairmen since the Convention.

Football fans will be interested to know that the California-Stanford "Big Game" will take place on November 25.

F. A. Hough to Lead Technical Section

DUE to the unavoidable resignation of Guy Corfield, who had been appointed to succeed himself as chairman of the Technical Section, President Egleston has appointed F. A. Hough of the Southern Counties Gas Co. to this responsible position.

F. A. Hough

Mr. Hough is well known to all members of the Association through his activity as a committee worker for several years. Last year he served the Association as chairman of its Distribution Committee, which under his supervision presented one of the most outstanding programs in its history.

Organization of committee structure in the Technical Section is already under way. The three major committees on Distribution, Transmission, and Production, under which the Section's work has fallen for the past few years will be continued, and a fourth major committee added, that on Utilization.

Mr. Hough has announced the following main committee chairmanships:

Distribution Committee: A. R. Bailey, Coast Counties Gas and Electric Co., chairman.

Transmission Committee: P. E. Beckman, Pacific Gas and Electric Co., chairman.

Utilization Committee: Frank Wills, Pacific Gas and Electric Co., chairman.

Each of the above-named committee heads is now engaged in working out sub-committee organization, and appointments of the various sub-chairmen and committee representatives will be made in the near future.

"Public Utility Women" Bulletin Resumed

In October, Vol. 3 No. 1 of the Women's Committee Bulletin "Public Utility Women" was issued, edited by Clyda E. Weems, chairman of the Association's Women's Committee. "Public

Utility Women" was published for a time last year as a joint activity of P.C.G.A. and Pacific Coast Electrical Association Women's Committees, but was discontinued due to withdrawal of financial support by the P.C.E.A. It has been included in the P.C.G.A. budget this year and its reappearance is a source of satisfaction to Women Committee members.

Miss Weems, who has had marked success in women's committee work in the San Joaquin Light and Power Co. at Fresno, was appointed to the Women's Committee chairmanship by R. E. Fisher, this year's chairman of the Public Relations Section. Lilian Broeker, chairman of the Pacific Gas and Electric Co. Women's Committee, is vice-chairman.

F. H. Holden Resigns Post With So. Calif. Gas Co.

F. H. HOLDEN, supervisor, advertising and publications for the Southern California Gas Co., has resigned this position after an 11-month leave of absence during which he has been acting as secretary-manager of the Printing Trades Association of Los Angeles. He will make his affiliation with the printing industry permanent.

F. H. Holden

Mr. Holden joined the Southern California Gas Co. staff in 1923, establishing the department of information, the activities of which have expanded considerably under his direction. He has been a leader in cooperative advertising work in the gas industry, having been chairman of the Publicity and Advertising Section of the Pacific Coast Gas Association, a member of the P.C.G.A. Cooperative Advertising Committee, and chairman of the Joint Natural Gas Advertising Committee of Southern California.

New Gas Supplies for Palestine and Flat Rock, Ill.

E. M. Kerber, president, Crawford County Gas Co., has announced that new gas supplies for Palestine and Flat Rock, Ill., will be available through addition of a new well 5 miles west of Flat Rock and other wells 6 miles southwest of the same town in the Mann-Petty fields.

Metropolitan Utilities District, Omaha, Begins New Holder Project

Excavation work has begun in Omaha, Neb., for the 8,000,000 cubic foot gas holder to be constructed by the Metropolitan Utilities District. The District is also adding a gas purifier at its plant at a cost of about $33,000.

Dickey Leaves Pacific Meter Works to Take Brokerage Firm Partnership

WM. D. DICKEY, manager of the Pacific Meter Works, American Meter Co., since 1927, announced his resignation from that office in October, to take effect about November 1. He leaves the Pacific Meter Works to become an active general partner in Irving Lundborg & Co., a San Francisco investment brokerage house established since 1915, with seats on the San Francisco Stock Exchange and San Francisco Curb Exchange. Mr. Dickey, in his several years of association with the gas industry has built up a wide acquaintanceship and his decision to enter another line of work will be received with regret by many friends.

Wm. D. Dickey

Mr. Dickey was graduated from Yale College in 1919. He spent a year in the air service, being commissioned as second lieutenant in 1918. Following graduation he engaged in newspaper work with the Baltimore Star for a brief time, and in January, 1920, entered the employ of the American Meter Co. in its New York office as advertising representative. In August, 1920, he went to D. McDonald & Co., Albany factory of American Meter, to familiarize himself with the production end of the business, and early in 1922 came to San Francisco as superintendent of Pacific Meter Works, which was started the previous year. In 1924 he was made assistant manager, and manager in 1927, which position he has held to date.

Edwin Higgins, Calif. Oil and Gas Ass'n Secretary, Dies

On October 23, while enroute to the American Petroleum Institute annual meeting in Chicago, Edwin Higgins, managing director and secretary of the California Oil and Gas Association, died of a heart attack. He was 56 years of age. Mr. Higgins was active in the California oil and gas industry for many years, joining the staff of the California Chamber of Mines and Oil as assistant secretary in 1924 and being made secretary a year later. (The organization changed its title to California Oil and Gas Association in 1929.) At various times he was connected with the U. S. Bureau of Mines in Washington, D. C., as mining engineer, was assistant editor of the Engineering and Mining Journal, secretary to the California Metal and Mineral Producers Association, and inspector for the California State Mining Bureau.

Rehearing Denied on Kansas Anti-Merchandising Decision

Motion for a rehearing of the anti-utility merchandising cases in Kansas, filed by state attorney Roland Boynton, was denied by the Kansas Supreme Court on September 29. Utilities in Kansas are free to return to appliance sales activities.

Details of the decision which ruled the Kansas anti-merchandising law unconstitutional were given in *Western Gas* for July. As there recorded, the Gas Service Co. carried the test cases through the courts, meanwhile continuing its sales work under a temporary injunction.

L. E. Fischer President of Northern Natural Gas Co.

L. E. FISCHER, formerly vice-president in charge of operations of the North American Light and Power Co., Chicago, has resigned this position to become president of the Northern Natural Gas Co., succeeding William Chamberlain. Mr. Chamberlain has been elected chairman of the board of Northern Natural, and J. F. Mortimer, New York, becomes vice-president in charge of operations of the North American Light and Power.

Mr. Fischer began his engineering career as city engineer for Paris, Ill., going to Danville, Ill., about 1899 with the W. D. McKinley Co., owners of the Illinois Traction System, of which he later became manager. He went to St. Louis about 1908 to establish a consulting engineering organization, and later joined the North American Light and Power Co.

Northern Natural Gas Co. is jointly owned by North American Light and Power Co., United Light and Power Co. and Lone Star Gas Co. Mr. Fischer before his present appointment has served as executive vice-president of Northern Natural, in addition to his office with North American Light and Power.

Kettleman Gathering System Completed by So. Calif. Gas

Southern California Gas Co. during October completed its gathering system in the Kettleman Hills area. Four miles of 16-inch line were laid from the Middle Dome section to join the company's 20-inch line running south to Los Angeles. Also 2 miles of 16-inch line were laid from the Standard Gasoline Co.'s 33J absorption plant to the same company's 3P plant in the North Dome area of Kettleman Hills.

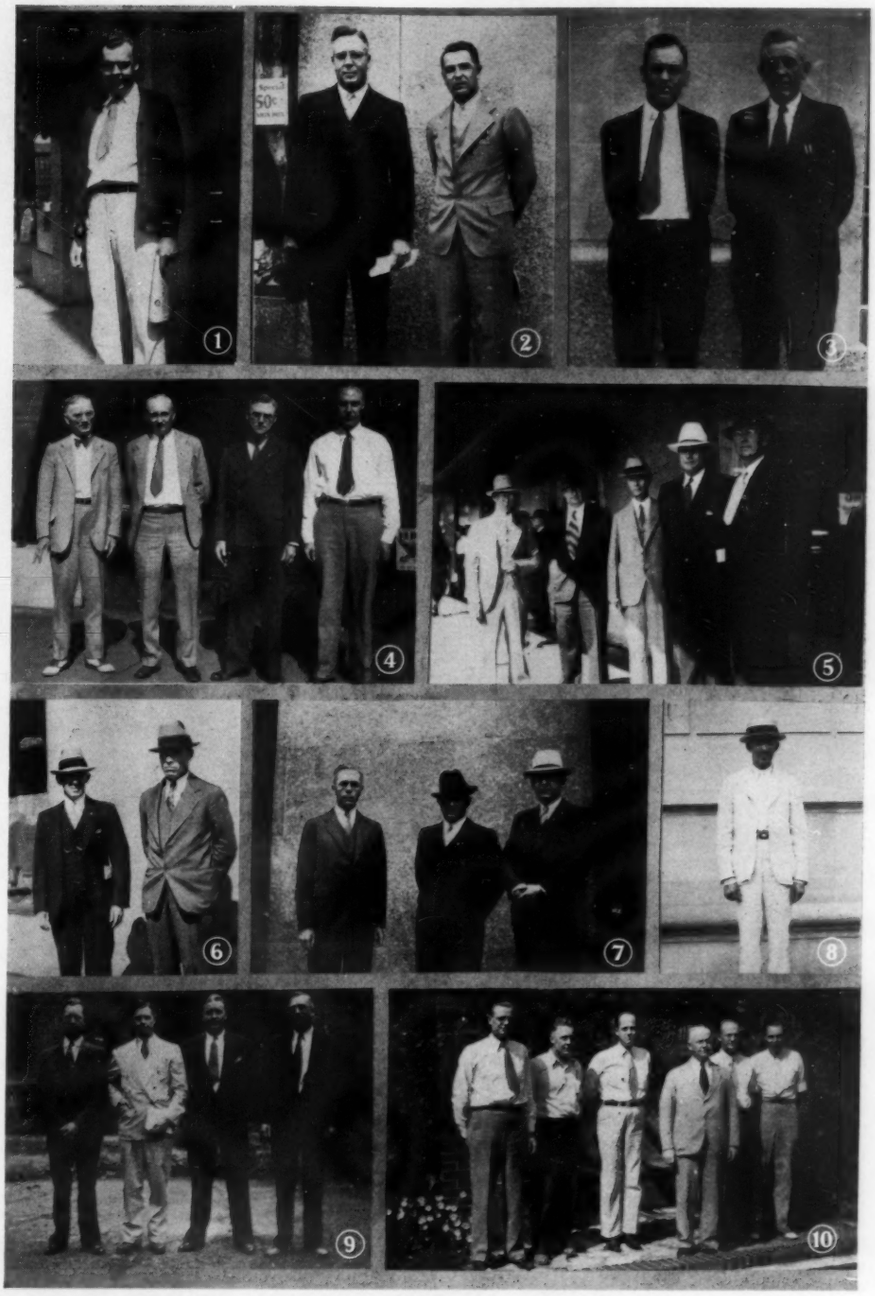
Occupation Tax Proposed for Texas Natural Gas Production

A bill pending in the Texas legislature proposes to levy an occupation tax of 2 cents per M c.f. on natural gas production. The tax would not begin until quarterly production reaches 200,000,000 cubic feet and would be paid quarterly on natural gas produced, transported, sold or delivered, or imported into the state for use as light or fuel.

Former Dallas Gas Co. Head Killed

Charles W. Tippy, until 1912 general manager of Dallas Gas Co., Dallas, Tex., was recently killed in an automobile accident at Jackson, Mich. He was 58 years of age.

Here and There with "Western Gas"



More photographs from a field trip through "Western Gas" circulation area

FOR the past three months this page has been given over to views of gas men and gas operating properties along the route of the coast-to-coast field trip made from June to November of this year by Craig Espy, vice-president of *Western Gas*. Several of the views presented this month (Nos. 2, 5, 6, 7) were snapped at the American Gas Association sessions in Chicago, the others being taken at company offices. The photographs are identified below (read from left to right):

(1) P. A. STOVER, rate and public relations department, Central States Electric Co., Cedar Rapids, Ia.

(2) PAUL F. MCBRIDE, general manager, Southern Cities Distributing Co., Shreveport, La. W. M. LITTLE, general superintendent of distribution, Arkansas Natural Gas Corp., Shreveport, La.

(3) H. D. MAKEEVER, new business manager; T. L. CONNOR, gas superintendent, Peoples Gas & Electric Co., Mason City, Ia.

(4) A. T. PLEUNE, office manager; E. E. HAHN, superintendent of distribution; A. L. MCKINSTRY, sales manager; KENNETH CORNELL, house heating engineer, Cedar Rapids Gas Co., Cedar Rapids, Ia.

(5) E. J. HATZENBUEHLER, industrial engineer, TOM UHL, assistant secretary, Lone Star Gas Co.; R. M. REDDING, engineer and general superintendent, Dallas Gas Co., F. L. CARMICHALL, superintendent of distribution, Community Natural Gas Co., W. R. STEPHENS, general auditor, Lone Star Gas Co.

(6) J. WOODWARD MARTIN, sales manager, Stargas department, Lone Star Gas Co.; PAUL COFFIN, assistant general superintendent, Lone Star Gasoline Co.

(7) EUGENE C. WHITCOMB, commercial manager, Fort Worth Division, Lone Star Gas Co. J. A. MARTIN, superintendent, maintenance and transportation, Lone Star Gas Co., C. K. PATTON, commercial manager, Dallas Gas Co.

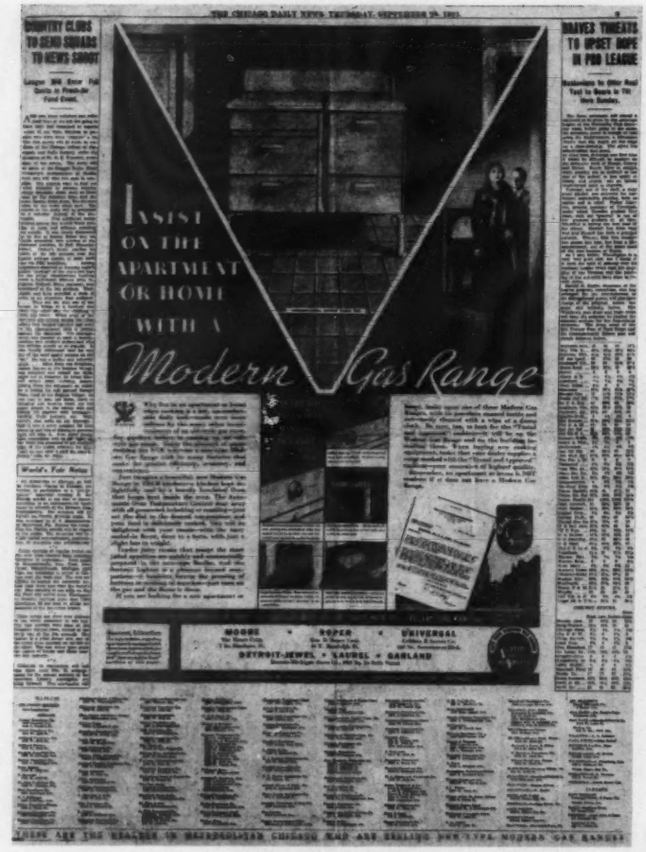
(8) JOS. H. AINSWORTH, gas utilization department, Iowa Electric Light & Power Co., Cedar Rapids, Ia.

(9) CARL M. STEPHENS, auditor and purchasing agent, L. D. SIMMONS, new business manager, B. E. BAKER, salesman, J. F. KEELINE, house heating engineer, Council Bluffs Gas Co., Council Bluffs, Ia.

(10) A. S. OLSON, sales supervisor, H. J. OSMANSON, shop foreman, W. H. HOGAN, general superintendent, T. C. RODERICK, general manager, GEORGE KRAMER, engineer, FRANK LAUTERBACH, in charge of sales floor, Fort Dodge Gas & Electric Co., Fort Dodge, Ia.

Leakage Elimination Work Progressing at Palo Alto, Calif.

At Palo Alto, Calif., the municipal gas department is conducting a program of leakage elimination, according to L. Harold Anderson, manager of utilities. Pipe replacements are being made at the rate of about 500 feet a week, and leakage has already been cut considerably.



One of a series of advertisements dominating full pages of metropolitan Chicago dailies, in the interests of the Gas Appliance Society's current campaign. Note the names of cooperating dealers at the bottom of the advertisement. The copy stresses modern gas range equipment for apartment houses in the Chicago area

Chicago's Cooperative Range Drive

AN important campaign is now being waged cooperatively by several gas range manufacturers in the Chicago area, along lines which are potentially adaptable in other major population centers. Through the united efforts of the cooperating manufacturers dominant advertising space is being run in metropolitan Chicago dailies. Many dealers are being enrolled for special promotion of range sales, and in general a complete merchandising program is being developed with the modern gas range and the efficiency of gas cooking as its central theme.

Cooperative action of the several range manufacturers represented is being effected through organization of the Gas Appliance Society of Metropolitan Chicago. It is proposed to organize similar societies in other cities, membership being made up entirely of dealers. A certificate of membership is given each qualified dealer.

Headquarters organization of the Society consists of a president, a board of directors, a managing secretary and staff. The managing secretary and staff are responsible for the actual work of the Society, calling on dealers regularly to make sure of proper tie-in with the program. Campaign material is being prepared, and approved sales methods are being established for use by cooperating dealers.

Convenience, economy and efficiency of the modern gas range, rather than price, will be stressed in dealer sales promotion, and proper supervision by the Society will insure the carrying out of this policy.

In all advertising of the Society there appears a seal carrying the wording: "New Type Modern Gas Ranges for Greater Efficiency, Economy and Convenience—Tested and Approved." Ranges will also be marked with this campaign emblem and the public is being directed to look for the seal in their range purchases.

One of the advertisements carried by the Society is shown on this page, and use of the emblem will be noted in the copy. Each of the ads run to date follows the same layout scheme, occupying virtually a full page with some editorial reading matter in the outside columns.

In some senses the campaign in metropolitan Chicago may be regarded as a laboratory test since it is subject to extension into other areas in furtherance of a general plan of natural gas range promotion by manufacturers. Efforts of the Gas Appliance Society of Metropolitan Chicago are especially designed to force apartment house owners and operators to equip their buildings with modern gas ranges, and sales work will also be aimed directly at the apartment market. The residence load of course is not lost sight of, but the apartment market is being stressed. Typical newspaper advertising repeats the phrase: "Insist on the modern gas range in your apartment or home."

Numerous Managerial Changes In Community Natural Districts

Elmer Daily, formerly with Community Natural Gas Co. at Handley, Texas, has been appointed manager of the newly formed Mansfield district, including Mansfield, Burleson, Joshua, Godley, Lillian, Britton and Midlothian. Alfred Moore, also of Handley, has been promoted to local manager of the Grapevine district which has been set up to include Grapevine, Rhome, Newark, Saginaw, Chico, Irving and Birdville.

H. J. Kennon has been appointed manager of the Hubbard district to replace Claud Bush, who is no longer connected with the company. Donald M. Ferris has been employed as local manager for the Stamford and Western Gas Co. at Rotan.

Fay Bridges, manager at Walters, Okla., has been transferred to Teague as manager and J. A. Hayes, formerly at Teague, is now filling Mr. Bridge's place at Walters.

Raymond Neal, local manager at Merkel, has been transferred to the Sweetwater division office, being succeeded in Merkel by R. O. Pearson, who has been in the Hamlin office.

Claude C. Brown Chief Engineer for California Commission

Claude C. Brown, for the past several years gas and electric engineer for the California State Railroad Commission, late in October was appointed chief engineer, effective November 1. Mr. Brown succeeds A. G. Mott, chief engineer for the past 7 years, who has been made director of the recently formed Public Utilities Division of the California State Board of Equalization.

Claude C. Brown

James E. McCaffey, who has been assistant engineer of the Commission in charge of the gas and electric division in Los Angeles for several years, will take Mr. Brown's position, headquartering in San Francisco.

DePue, Ill. and Zinc Plant to Have Natural Gas Soon

Natural gas service for the town of DePue, Ill., and possibly for Spring Valley, is planned as a result of the construction of a lateral to the Mineral Point Zinc Co. plant from the Natural Gas Pipeline Co. of America transmission line north of DePue. Service to the zinc plant and to DePue is anticipated before the end of the year, line construction now being under way.

Birmingham Gas Co. Reports 1800 New Customers Since April

Birmingham Gas Co., Birmingham, Ala., reports a gain of 1800 customers since April 1 of this year, with 600 customers being added in the month of September alone.

COMMITTEE:
DOUGLAS BUCKLER . SO. CALIF. GAS CO.
J. EARL JONES . . . SEATTLE GAS CO.
A. C. JOY (CHAIRMAN) . . P. G. & E.
PIERRE VINET . . . . . C. C. G. & E. CO
D. L. SCOTT . . . . L. A. G. & E. CO.

HEADQUARTERS:
PACIFIC COAST GAS ASSOCIATION
447 SUTTER STREET SAN FRANCISCO

GEO. P. EGLESTON, PRESIDENT
CLIFFORD JOHNSTONE, MNG. DIRECTOR

P.C.G.A. NEWS

CO-OPERATIVE ADVERTISING

NOVEMBER Advertising Schedule

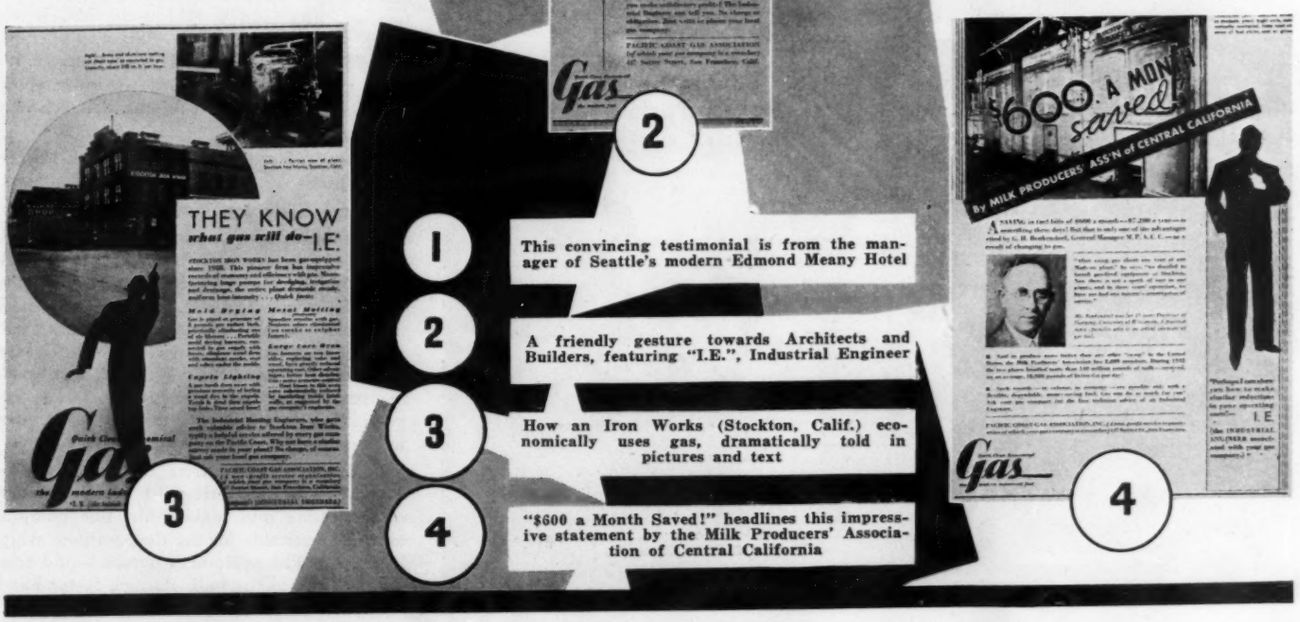
The 19 trade journals which regularly carry our dominant advertisements on "Gas, the Modern Industrial Fuel" have recently attained a new importance. The NRA has put them in the limelight!

Organization news and code developments in each industry are followed with intense interest by business executives who read these magazines.

As the official "organs" of their industries and trade associations, the established trade and technical publications have leaped overnight to new and greater importance in the commercial life of the Pacific West.

Always a good medium for our messages, they are now more effective than ever. Our advertising will profit by this increased reader-interest in the following November issues:

Miscellaneous Industries: **Western Baker . . . Western Confectioner and Ice Cream News . . . Pacific Dairy Review . . . Pacific Factory . . . Pacific Laundry Journal and Dry Cleaner. . . . Western Machinery and Steel.** ***Architects and Builders:*** **Architect and Engineer . . . California Arts and Architecture . . . Pacific Builder and Engineer . . . Southwest Builder and Contractor.** ***Hotels, Restaurants:*** **Hotel News of the West . . . Pacific Coast Chef . . . Western Hotel Reporter (alternated with other publications).** ***Retail Dealers:*** **Western Appliance Retailing . . . Western Plumbing and Heating Journal.**



1 This convincing testimonial is from the manager of Seattle's modern Edmond Meany Hotel

2 A friendly gesture towards Architects and Builders, featuring "I.E.", Industrial Engineer

3 How an Iron Works (Stockton, Calif.) economically uses gas, dramatically told in pictures and text

4 "$600 a Month Saved!" headlines this impressive statement by the Milk Producers' Association of Central California

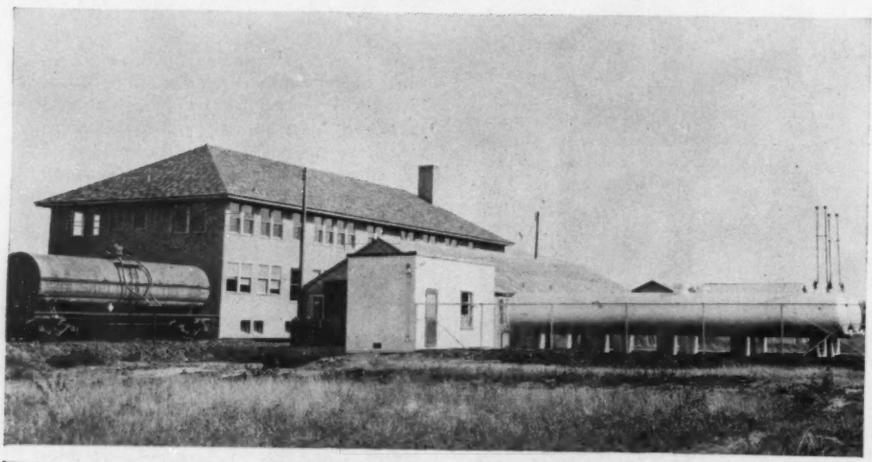
SEPTEMBER News Service Results

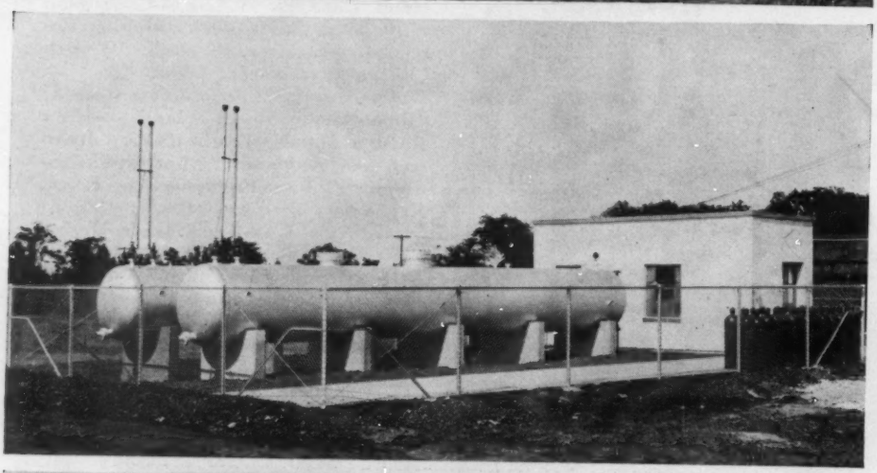
This monthly report summarizes results actually obtained by our Technical News Service. In October "Western Gas" (covering publicity to and through August) 90 published articles were reported. September found 12 more articles in print, bringing the 9-months' total to 102! September magazines contained the following:

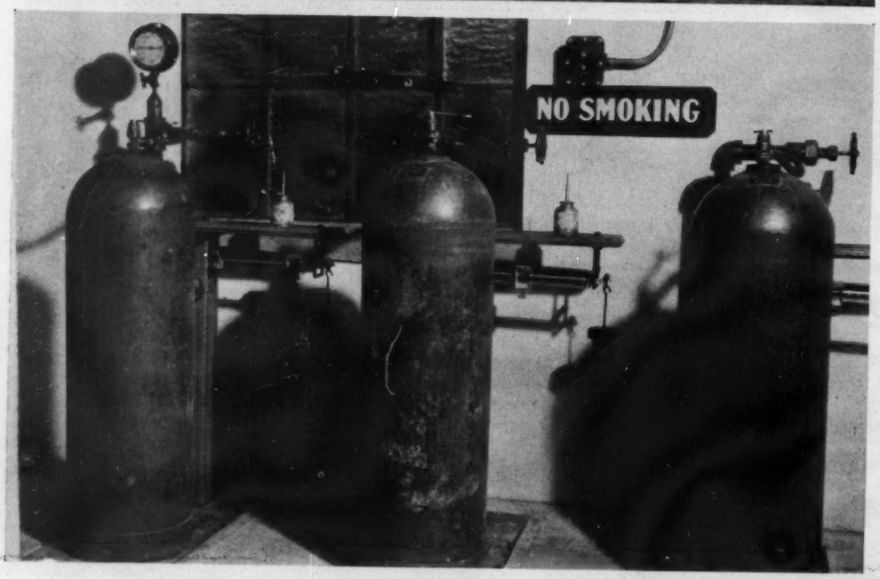
Western Restaurant: **(1) "Potato Chip Cooker"—Perfection of immersion gas-fired appliances; (2) "Popular Prices Key to Success"—Gas-fired cooking in Sampsel's restaurants.** ***Pacific Coast Chef:*** **"The Pheasant"—Gas-fired cooking and candy making.** ***Western Hotel Reporter:*** **. "Big Hotel Changes to Gas"—Conversion of heating plant, Mark Hopkins Hotel, San Francisco.** ***Keeler's:*** **"French Cuisine Exponents Adopt Gas" — Pompeii Grill.** ***Pacific Coast Record:*** **"Remarkable Steam Plant" — New Rosslyn Hotels, Los Angeles.** ***Architect and Engineer:*** **"Gas-fired Conditioning for Residences" — A.G.A. Research.** ***Western Beauty Shop:*** **"New Gas-fired Hair Drying Unit".** ***Pacific Laundry Journal:*** **"Combustion Control"—Galland Mercantile Laundry.** ***Pacific Factory:*** **"New Humphrey Unit for Heating and Drying."** ***Western Plumbing & Heating Journal:*** **"Modern Boiler Plant Conversion"—Mark Hopkins Hotel.**

BUTANE • PROPANE NEWS

Vol. 3, No. 11 November, 1933







Bottling Plant for Skelgas at Minneapolis

DURING the past summer the Skelgas Co., Kansas City, Mo., erected a bottling plant at Minneapolis, Minn., to afford better service facilities for Minnesota and adjacent service territory where the company's distribution of liquefied petroleum gas products has been showing considerable increase. Operations of the plant were begun on July 1, 1933.

Through the courtesy of W. G. Watkins, chief engineer of Skelgas Co., *Butane-Propane News* presents the three views of the Minneapolis plant, shown on this page. They show the following:

Upper: A general exterior of the plant, with unloading operations under way on the first car of Skelgas to be delivered. Large stucco building in background is the Minneapolis division sales office of Skelly Oil Co. and Skelgas Co. The smaller white structure of brick and steel construction, is the pump and bottling house. Facilities are provided in the long metal building shown behind the storage tanks, for storing appliances, cylinders and equipment in carload quantities.

Center: Storage facilities at the Minneapolis plant.

Lower: Cylinder-charging scales.

This bulk storage plant has a combined capacity of approximately 12,000 gallons in the two tanks shown, the tanks being constructed to conform with Class 1 A.S.M.E. Code specifications. Tanks are of 25/32-inch steel plates, all electrically welded with seams X-rayed to detect any defects. Their working pressure is about 250 pounds, and a 500-pound hydrostatic test was run before they were put into service on Skelgas.

Pumping equipment at the Skelgas plant is dual speed, rendering the plant's capacity more flexible and making the one pumping unit more suitable for the dual purpose which it serves. The equipment pumps liquid from the tank car to the bulk storage, faster hand-

ling being permissible in this use. For pumping from storage tanks to cylinders the same speed could not be maintained without building up excessive pressure, and for this purpose the lower speed is provided.

Cylinders may be filled at any desired rate up to the maximum capacity of one cylinder in slightly less than two minutes.

Charging capacity of the plant is approximately 17,600 pounds daily, or some 200 cylinders holding 88 pounds each.

Future increase in plant size has been considered in the design, and additional units may be added to any portion without interfering with present operation.

Compactness and simplicity of operation were primary objectives in the plant design, the company being guided by its experience in constructing several plants for similar service at other plants in its distribution area.

Mr. Watkins designed the Minneapolis plant and supervised its construction.

Propane Distribution Begins in Buenos Aires Suburbs

DISTRIBUTION and sale of propane under the name of Supergas was started in the suburbs of Buenos Aires, Argentina, on September 1, by Yacimientos Petroliferos Fiscales, national refiners. Señor E. Wilson Rae is manager of the Supergas department for Y. P. F.

Price to the consumer is 48 centavos per kilogram. The two-tank system is used, each tank weighing 100 pounds. No charge for the equipment is made to consumers of credit rating; from those without credit rating 100 pesos deposit is called for. A service charge of 1 peso per month is made and where a consumer fails to use a minimum of one tank every four months a 4 peso charge is made for each month over the four.

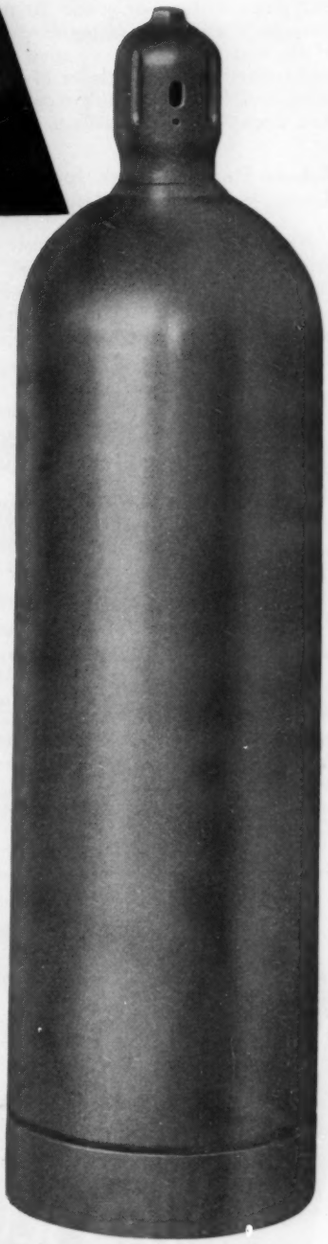
All appliances must be approved by the Y. P. F. and four official installation representatives have been appointed to set the equipment. One of the four firms is Ennis & Williamson which markets a line of ranges and water heaters under its own brand and sells through distributors. *Butane-Propane News* is indebted to Sam B. Ennis for the above information on bottled gas service in Buenos Aires.

Frank Budd Joins Sonner Burner Co. as Sales Manager

Frank Budd, formerly district manager of the Minnesota Northern Natural Gas Co. at Rochester, Minn., has been appointed sales manager of the Sonner Burner Co., with headquarters at Winfield, Kan. He comes to this post from three years service with the Northern Natural interests, being at one time assistant to the general manager of Northern Gas and Pipe Line Company at Omaha.

From 1918 to 1930 Mr. Budd was associated with the Central Indiana Gas Co. at Muncie, Ind. He took an active part in activities of the Indiana Gas Association during this period, being on the executive board of the organization and also secretary

DOMINATES
—by two to one



There are TWICE as many Hackney Liquefied Petroleum Gas Cylinders in Service as all others COMBINED

Active in pioneering the first cylinders for Butane, Propane, and Butane-Propane mixtures—Pressed Steel Tank Company have had wide experience serving the country's largest users.

For liquefied gas, these include: Shell, Standard, Skelly, Philgas, Union, etc.—and users of cylinders for other gases include: Frigidaire, Virginia Smelting, Mathieson Alkali, Pennsylvania Salt—and many others.

The DOMINATION by Hackney in this field, indicates the UNIFORM QUALITY, and SUPERIOR DESIGN of Hackney cylinders.

Hackney
MILWAUKEE
PRESSED STEEL TANK COMPANY
208 S. LaSalle St. Bldg. Room 1185, Chicago, Ill.
1363 Vanderbilt Concourse Bldg., New York, N. Y.
6633 Greenfield Avenue, Milwaukee, Wis.
666 Roosevelt Bldg., Los Angeles, Calif.

CONTAINERS FOR GASES, LIQUIDS AND SOLIDS

Write for New Important Engineering Data on
BUTANE
The perfect fuel for Rail Motor Cars, Busses, Trucks, Stationary Engines. An efficient, economical substitute for manufactured gas, natural gas and electricity for domestic and industrial uses.

BUTANE SALES CO.
PIONEERS IN BUTANE DEVELOPMENT
55 New Montgomery
SAN FRANCISCO
SUtter 5678
973 N. Main
LOS ANGELES
CApital 12108

and treasurer for four years. At the present time he is a member of the executive board of the Mid-West Gas Association. During his early years of gas experience Mr. Budd was associated for a time with the Spokane Gas and Fuel Co., Spokane, Wash.

Butane Stand-by Plants for Large Industrial Gas Users

At a number of large industrial plants which use natural gas for fuel, stand-by liquefied petroleum gas plants have been installed. Philgas Co., Detroit, Mich., has a number of installations of this type, among them those listed below:

Pittsburgh Plate Glass Plant, Crystal City, Mo.
Delco-Remy Corp., Anderson, Ind.
Saginaw Malleable Iron Co., Saginaw, Mich.
Keystone Steel and Wire Co., Peoria, Ill.
Corning Glass Works, Wellsboro, Pa.
Western Electric Co., Chicago, Ill.
Muncie Products Co., Muncie, Ind.

Davis Handling Sales at Jennings, La.; Ellington at Crowley

Harry Davis has been transferred from the Crowley, La., office of United Gas Public Service Co. to the office at Jennings, where he will be in charge of sales and service work. W. D. Ellington, formerly in charge of service at Jennings, is now located at the Crowley office.

"Make a Job" Campaign Gets New Pyrofax Users

PYROFAX Division, Carbide and Carbon Chemicals Corp., recently conducted a campaign known as the "Make a Job" campaign, run from its New York headquarters and reaching every Pyrofax consumer. Names of hundreds of prospects for Pyrofax were secured from present users, the cooperation of customers being secured by offer of free Pyrofax for each sale and also the opportunity to win special prizes. Due to the success of the effort the campaign may become an annual feature.

Carefully designed publicity and advertising material for the campaign emphasized that new Pyrofax customers meant new jobs for men out of work, and the lightening of kitchen duties for new users, as well as half a tank of free gas to each customer suggesting the name of a prospect who was sold.

Every customer received four mailing pieces—an envelope enclosure announcing the campaign (sent with customer billing); a separately mailed teaser broadside, sent at the same time as the first enclosure and giving contest details together with a prospect card; a book of contest rules sent three weeks after the first mailing and picturing the special prizes which consisted of three gas ranges, a water heater, and an Electrolux refrigerator; and a closing broadside on the contest, mailed three weeks after the book of rules.

Campaign headquarters at New York made immediate acknowledgement of prospects when received from the customers, and when sales were made customers were at once informed of the amount of Pyrofax gas awarded them.

Reproduced in an envelope enclosure, the attractive copy above announced the "Make A Job" new business drive to Pyrofax customers. It was the first in a series of four direct-mail pieces. (Cut courtesy of "Electrolux Refrigerator News").

KEROTEST
tested and proved
FORGED BRASS
VALVES,
MANIFOLDS
and FITTINGS
for
PROPANE
BOTTLED GAS
SERVICE
Write for descriptive circular
KEROTEST MFG. CO.
PITTSBURGH, PA.
KEROTEST

Bottled Natural Gas for Main and Service Testing

(Continued from Page 9)

under pressure in excess of that carried in the main, the stoppage can be blown back into the main and the connection and riser thus cleared. There is no danger in using bottled gas for this purpose, and it is a simple matter for a patrolman or trouble man to do this work without assistance, whereas by the old method it was necessary to excavate below the main, disconnect the riser, and attempt to run a wire through a cock into the main, which is quite dangerous and expensive under high pressure.

In Fig. 4 a set-up is shown by which short sections of pipe lines, or tanks, etc. can be hydrostatically tested with bottled natural gas. This set-up consists of a tank made of 6-in. extra heavy seamless steel tubing about 8 ft. long, wth bumped heads welded to each end. A ¾-in. coupling is welded to the upper side of one end for a filling and pressure tap. A discharge line of ⅜-in. copper tubing is run to the specimen to be tested. Three ¼-in. nipples are welded into the tank, one going to within 1 in. of the bottom, one half-way, and one 1 in. from the top. Needle valves (¼ in.) are screwed on to these nipples, and are used to determine the amount of water in the tank. This tank should be hydrostatically tested to 3000 lbs. or more if the specimens are to be tested up to 1500 or 1800 lbs. A needle valve in the tube connecting the specimen to the water tank is used to control the pressure in the specimen and serves to restrict the flow of water in case the specimen bursts. This method is used in the shop for testing high-pressure regulator bodies, valves, castings, etc.

For shop work, where high pressures are required for testing pilots or control valves, and large flows are not required, bottled natural gas can be used with greater safety than oxygen.

Recently it became necessary, due to construction work, to isolate a 3-in. high pressure line feeding two city blocks on which there were 40 services. A manifold was constructed for two bottles of compressed gas. Gas was supplied from the bottles at 5 lbs. pressure to the main through a service. The main was thus fed for three hours. All interruption to service to the 40 consumers supplied by the main was avoided. This method can be applied without an operator if two or more high pressure reducing regulators are used instead of one, so that in case one should freeze the other would take care of the load until the first thaws out.

Interest Spreading in Butane for Motor Trucks

EXPERIMENTATION with use of butane in internal combustion engines, which has been particularly active in California during the past year, is beginning to bear fruit in a number of applications.

For some time butane has served for running in automotive engines at factories or assembly plants, and has operated engines for irrigation pumping and even special pipe line pumping. *Butane-Propane News* has also commented before upon more recent experiments with butane in locomotives, tractors, trucks and busses.

California developments of the past few weeks indicate that butane will find a relatively large field of use for motor truck fuel. Large fleet owners will be the logical market, since the necessary investment in special storage facilities will entail considerable expense. In October several major contracts were signed with trucking operators by butane manufacturers in California.

Indicating the growing interest in the subject, the Los Angeles chapter of the Society of Automotive Engineers has programmed several butane discussions for its November 3 meeting.

Patents of Interest to Liquefied Gas Industry

A patent index in the October 24 issue of the news bulletin published by Compressed Gas Manufacturers Association, Inc., New York, N. Y., lists a number of recent patents of interest to the liquefied petroleum gas industry. Among them are the following:

Gas Manufacture, Method of: R. W. Thomas and G. G. Oberfell; U. S. 1,926,170, Sept. 12, 1933.

Leak Tester for Gas Containers: CO-Two Fire Eqpmt. Co.; U. S. 1,926,474, Sept. 12, 1933.

Liquid Hydrocarbon Burner: Don G. Kelley; U. S. 1,928,898, Oct. 3, 1933.

Method and Apparatus for Compressing Gases: N. C. Christensen, U. S. 1,929,350, Oct. 3, 1933.

Method and Means for Compressing Gases: National Brake & Elec. Co.; U. S. 1,927,964, Sept. 26, 1933.

Stargas to be Sold Through Dealers in 4 Texas Counties

Stargas service is being extended to Mason, Llano, San Saba, and Mills counties, Texas, through local dealers, with the assistance of R. F. Foster and J. R. Severs of the Lone Star organization, who are headquartering in San Saba. The Stargas Department of Lone Star Gas Co. manufactures liquefied petroleum gas for distribution in bottled form over the extensive system of Lone Star and subsidiary companies, in Texas and Oklahoma.

Ogden Gas Co. Moves Offices

The Ogden Gas Co., Ogden, Utah, has moved its offices from its previous headquarters at 414 24th St., to 2336 Washington Ave., where additional space is available for the display of gas appliances.

CYLINDERS FOR BOTTLED GAS

Properly Designed in Accordance with I.C.C. Regulations — Rigidly Inspected — Thoroughly Tested.

The majority of distributors of Liquefied Petroleum Gas now use Scaife Cylinders.

Modern Manufacturing Methods combined with an increasing demand have resulted in Scaife I.C.C. Cylinders being the most economical cylinder in use today.

Cylinders built to meet each purchaser's service requirements.

A large stock of cylinders of standard sizes insures prompt service. 130 years of experience in manufacture of steel products is behind each Scaife cylinder.

FOUNDED 1802

WM. B. SCAIFE & SONS CO.

Oakmont, Pa. (Pittsburgh District)

New York Pittsburgh Chicago

A. G. A. Industrial Research Committee Technical Bulletins Available

Four technical bulletins have been issued by the American Gas Association Committee on Industrial Gas Research, copies being now available, according to Eugene D. Milener, industrial research representative for the A. G. A.

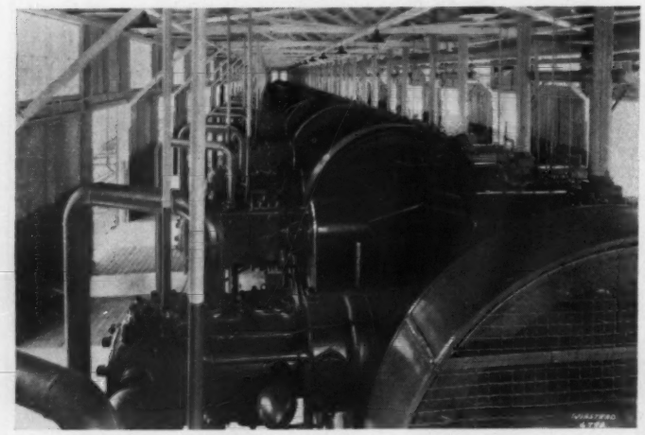
Two of the bulletins come from the A. G. A. Laboratory, report No. 723, "Research in Fundamentals of Combustion Space Requirements in High Temperature Gas Furnaces"; and Report No. 724, "Research in the Elimination of Noise in Industrial Gas Burners" (noises produced by industrial gas burners as affected by the features of burner and tunnel design).

The other two bulletins were produced by the Department of Engineering Research, University of Michigan, Ann Arbor. Both studies were sponsored by the A. G. A. Committee on Industrial Gas Research, the first (Bulletin No. 24) dealing with "The Malleabilization of White Cast Iron" by R. Schneidewind and A. E. White; and the second (Bulletin No. 25) with "Scaling of Steel at Heat-Treating Temperatures," by C. Upthegrove.

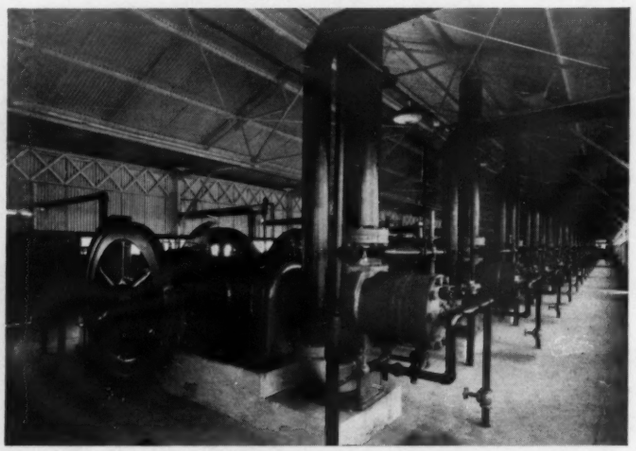
Municipal Ownership Loses in Cherryvale, Kansas

Proposal to issue $85,000 in bonds for construction of municipal gas plant was rejected by voters of Cherryvale, Kans., on October 4. Cherryvale is served by Union Public Service Co., a Gas Service Co. property.

MEASUREMENT and CONTROL



Santa Fe Springs, Calif., compressor plant of Union Oil Co. 4,000 H.P. installed, in 20 Clark units of 200 H.P. each.



An East Texas plant with 26 Clark 100 H.P. units. Note the use of overhead exhausts in this installation.

Compression of Natural Gas

By A. K. HEGEMAN

*Smith Booth Usher Company**

AS LATE as 10 years ago, little attention was paid to the laws of compression of natural gas. When it became necessary to erect a new compressor plant, considerable guessing was combined with many assumptions to result in a plant which often proved when placed in operation, to have something between 75 and 125 per cent of its calculated capacity. The very sound (to say nothing of the meaning) of such words as "Volumetric Efficiency," "Percentage of Clearance," "Valve Area," "Adiabatic Efficiency," "Ratio of Specific Heats," etc., etc., was totally unfamiliar to the plant engineer or superintendent as well as to the compressor salesman. Pressures as high as 400 pounds were looked upon as being terrifically dangerous to life and property.

Today pressures of 1500 pounds excite but passing interest and compressor plants are erected with so much forethought that capacities can be and are calculated within 1 or 2 per cent of the actual. Practically every organization has technical men entirely familiar with the meaning, derivation, use and value of those terms so seldom heard or understood a few years ago.

Before proceeding to a discussion of some of the laws and facts covering the compression of natural gas, it will probably be expedient to define one or two of the terms which will be used in the discussion.

Adiabatic compression is compression without loss of heat. It is unattainable on commercial equipment. Isothermal compression (likewise commercially unattainable) is compression at constant temperature.

The actual temperature of a gas under compression lies somewhere between the adiabatic and isothermal temperatures. Factors entering into the determination of the final temperature T_2 of the gas are the initial temperature T, the ratio of compressions R, and the value of the exponent "N." This exponent "N" is very illusive and changeable and even today there is a wide variation in the value assigned to the exponent by various individuals. Values as low as 1.0 and as high as 1.32 are often quoted. The probable truth of the matter is that "N" has a different value for every hydro-carbon, for every possible value of R, for every design of compressor cylinder and valve, and again for each size of compressor cylinder. The effect of the difference in the design and size of the compressor cylinders is caused by the different efficiencies of cooling with resulting effect upon the percentage of heat extracted from the gas. Naturally the temperature of the cooling water also has its effect. For air "N" is theoretically equal to 1.41. Tests made on various compressors cause one authority to assign "N" for air, a value of 1.33, while another authority gives the exponent a value of 1.25. Technically, "N" is the ratio of the specific heat at constant pressure to the specific heat at constant volume.

The probability in the case of ordinary natural gas compressed in water-cooled cylinders is that "N" has a value somewhere between 1.0 and 1.2 and the experience of the compressor engineer combined with information available to him as to the results of tests must be relied upon in selecting the proper value of this troublesome exponent.

Time and space do not permit the derivation of the formulae for the determination of the temperature and horsepower of compression, which, in familiar symbols may be expressed as follows:

$$T_2 = T_1 \left(\frac{P_2}{P_1}\right)^x$$

$$\text{H.P.} = 3.03 \frac{T_1 P_o N}{T_o (N-1)} (R^x - 1)$$

Where

T_2 = Absolute final temperature in degrees F.

T_1 = Absolute initial temperature in degrees F.

P_1 = Absolute intake pressure

P_2 = Absolute final pressure

P_o = Measurement base in absolute degrees F.

T_o = Measurement base in pounds absolute

$R = P_2 + P_1$

$X = \frac{N-1}{N}$

N = Ratio of specific heats.

H.P. = Horsepower per 1000 M c.f. per 24 hours.

The actual horsepower is higher than either the adiabatic or isothermal horsepower, this being largely due to valve losses.

Clearance

The clearance is the dead space in a cylinder largely due to valve ports and space between the piston and cylinder head at the end of the stroke. It is usually expressed

* Presented before the Southern California Meter Association, August 24, 1933.

in terms of percentage of the effective volume or piston displacement. The lower the percentage of clearance, the more efficient the cylinder will be over a wide range of ratio of compressions. The capacity of a cylinder may be expressed as follows:

$$\text{Capacity} = \frac{P_1 DE}{P_o}$$

Where

D = piston displacement

E = volumetric efficiency.

the formula for volumetric efficiency is

$$E = 1 - C\,[R^{1/n} - 1]$$

Where

C = Per cent clearance expressed as a decimal.

Let us assume that a cylinder having D = 1000 CFM is compressing gas from 14.7 lbs. abs. to 73.5 lbs. abs. The clearance is 5 per cent. What is the capacity? Assume n = 1. Since $P_1 = 14.7$ lbs. abs. and $P_o = 14.7$ lbs. abs.

$$R = \frac{73.5}{14.7} = 5 \text{ and}$$

$$E = 1 - .05\ (5 - 1)$$

$$= 1 - .20 = .80 = 80 \text{ per cent}$$

Capacity $1 \times 1000 \times .80 = 800$ CFM

Now let us assume a similar cylinder having 10 per cent clearance, other conditions being identical. In this case $E = 1 - .10\ (5 - 1) = .60 = 60$ per cent.

Capacity $= 1 \times 1000 \times .60 = 600$ CFM

Cylinder No. 1 is pumping 33⅓ per cent more gas than Cylinder No. 2. This illustrates the fallacy of assuming that two cylinders of the same displacement but manufactured to different designs, working side by side under identical pressure conditions, must necessarily be compressing the same amount of gas. Many an 18-x20-inch cylinder is not pumping as much gas as its 17-x20-inch neighbor operating at the same R.P.M.!

Commercial clearances on the 20-inch stroke cylinders so common in oilfield work vary from 2 to 20 per cent. Taking advantage of the effect of clearance, many manufacturers are equipping their cylinders with clearance bottles which may be used at will, thereby making the cylinders adaptable over a wide range of pressure conditions.

Multi-stage Compression

Isothermal compression requires less horsepower than does adiabatic compression. It is unattainable in practice but is approached by compression in stages with cooling of the gas between stages. In multi-stage work, it is customary to proportion or balance the cylinder sizes so that the work of compression is evenly divided between them. The saving in power is accomplished by cooling the gas between stages, thereby approaching compression at constant temperature. There is absolutely no saving in multi-stage compression unless advantage is taken of the opportunity to remove the heat of compression from the gas discharged from the first stage.

The writer has definite knowledge of several cases in which attempts to save horsepower without intercooling have failed to do so and have resulted only in expense to the experimenter. The belief expressed by a few who are unfamiliar with the laws of compression to the effect that such division of the work between two cylinders results in lower final temperatures is entirely erroneous. Application of the formula given earlier in this paper will prove that instead of having two warm cylinders as the result of single stage operations, the experimenter will have a fairly cool low stage but a fully as hot stage cylinder accompanied by an unbalanced load.

Example:

$T_1 = 80$ per cent F. $= 540°$ abs.

$P_1 = 10$ lbs. abs.

$P_2 = 90$ lbs. abs.

$R = 9$

$N = 1.1$

When single staging the final temperature $= 200°$ F. When two staging without intercooling, the intermediate temperature $= 140°$ F. and the final temperature $= 200°$ F. The result is that

1. The gas is just as hot as if single stage compression had been used.
2. No power has been saved.
3. An unbalanced load, never advantageous, results on the two sides of the compressor, because the gas going to the second stage at 140° F. has a volume about 12 per cent greater than that going to the first stage. The formula for this is

$$\frac{V_1}{V_2} = \frac{T_1}{T_2}$$

There is a reduction in horsepower accomplished by two stage compression with intercooling no matter how low the ratio of compressions. However, when R is less than 7 or 8, the saving in power is usually more than offset by the first and operating costs of the intercooling apparatus.

An example is that when R = 9, single stage compression requires about 137 H.P. per 1000 M c.f. per 24 hours, while two stage compression requires but 120 H.P. per 1000 M c.f. per 24 hours. Compressor cylinders should be so proportioned that the absolute intermediate pressure is equal to the absolute intake pressure multiplied by the square root of R.

Air should never be compressed over eight times in a single stage. The heat produced by compression of air above this ratio breaks down or cracks the lubricating oil and the vapors formed, when intermixed with the air, cause a highly explosive mixture. At the same time, highly troublesome coke is also formed with injurious results to the compressor cylinder and valves. When compressing natural gas, the highly explosive mixture is not formed on account of the absence of oxygen, but the coking trouble is experienced.

Lubrication

Gas compressor cylinders, in order to avoid coking trouble, should be lubricated only with very high flash point oils. Air compressor cylinders, in order not only to avoid coking but also to avoid the formation of explosive mixtures, should be similarly lubricated. Compressed air explosions are very violent and destructive. Compressors treating propane, butane, etc., should be lubricated with mineral oil compounded with animal or vegetable fat.

High Pressure Compression

The advent of gas lift and repressuring have caused compression pressures as high as 1500 lbs. to be far from uncommon. Cylinders for pressures as high as 1500 lbs. can safely be made of nickel-chrome-iron alloys showing from 40,000 to 60,000 lbs. tensile strength. Above 1500 lbs. forged steel cylinders should be used. A compressor cylinder is a distinctly non-symmetrical and involved casting. Cast steel is treacherous when involved castings having potential internal strains are concerned and its use should therefore be avoided for this type of work. Its tendency toward porosity also makes it unsuitable for such high pressures.

During the last decade the direct gas engine driven unit has assumed and maintained its position as the favorite in the oilfields. It is less expensive to purchase, to install and to operate than is the older belt drive type of unit. The age old controversy over the comparative economy of the four cycle and two cycle types of engines still exists but it is a significant fact that in the January 31, 1933, issue of the Transactions of the American Society of Mechanical Engineers, a definite statement is made by the editor to the effect that the fuel economy of the two cycle engine has been so improved during recent years that it has become more economical than the four cycle type. A few oilfield organizations still favor electric motor drives for compressors, but with electricity purchased at the lowest rates costing $5.50 per horsepower per month against $2.00 per horsepower per month total operating and maintenance cost for gas engines including the compressors, it is hard to believe that the managements of the electrically inclined companies can long justify their position.

Pacific Meter Works Sponsors Oct. 26 Program

THE Los Angeles office of Pacific Meter Works, American Meter Co., sponsored the October 26 meeting of Southern California Meter Association, which was staged at the Lakewood Golf Club, Long Beach, Calif.

"The Metric Integrating Orifice Meter" was the subject of the first paper, given by A. L. Decker of the Pacific Meter Works' Los Angeles office.

Among the new developments in this meter is the gas clock, making operation of the instrument possible where electric current is not available.

K. C. Tomlinson, assistant manager of Pacific Meter Works, described the "Metric Gravitometer" recently offered by the American Meter Co. Working models of both instruments were on hand, set up to run tests on gas, and a practical demonstration of their operation was a part of the program.

F. E. Bradley, chairman of the S.C.M.A. Program Committee, made announcement regarding the Annual Exhibitors' Meeting which is scheduled for November 23 at the Los Angeles Gas & Electric Corp. auditorium, 810 South Flower Street, Los Angeles. For the past several years these Exhibitors' Meetings have brought together an interesting array of new measurement and control equipment, and numerous exhibitors have already arranged to participate in this year's display.

A paper by Leo. J. Kraps, assistant superintendent, Long Beach steam plant, Southern California Edison Co., has been arranged

for the Exhibitors' Meeting. In it Mr. Kraps will trace the gas consumed at the Long Beach steam plant from the source at Kettleman Hills following it through the transmission line into the plant and accounting for B.t.u. up to the production of steam. Use of control equipment in the plant process will be stressed in the discussion. The Long Beach steam plant is reported to be the world's largest user of natural gas, and has over $140,000 invested in regulation, control and analyzing equipment.

Safe Practice in Gas Transmission Line Construction and Maintenance

(Continued from Page 14)

is exceedingly dangerous to the tractor or team driver.

DITCHING

There are two methods in general use for ditching—machine and by hand.

If ditching is done by machine, all moving parts should be adequately guarded to prevent workmen from injury.

If ditching is done by hand, there are several important things to be watched both by men and foremen, if accidents are to be prevented:

1. Foremen should instruct all men not to use defective tools. Picks with loose handles, cracked or splintered pick, shovel or sledge handles, mushroomed heads on stone drills and chisels, all contribute a large number of accidents to the ditching gang. All defective tools should be condemned as soon as they show defects and be replaced with tools in good condition.

2. Men should be kept a sufficient distance apart, to prevent striking each other with tools. A very satisfactory practice is to give each man a 20 foot section. This enables the foreman to keep close check on the lazy workman.

3. Dirt and especially rock should be placed far enough back from the edge of the ditch to prevent same from falling on the workmen.

4. When working in rock, concrete, etc., all men should be required to wear an approved pair of goggles to prevent eye injury from flying chips. Many eyes have been destroyed because of failure to observe this practice.

5. All ditches more than 4 feet deep should be shored. Many bad accidents and not a few fatalities have resulted from "cave-ins" in what was apparently solid ditch wall.

6. Picks should always be laid flat when not in use. The practice of sticking them in the ground leaving a point sticking up has caused many serious injuries. If picks are handled to and from the job in a truck with men, the handles should always be knocked out before putting them in the truck.

7. All tools should be kept far enough from the ditch to prevent their falling or being knocked in on the workmen.

8. If blasting is necessary, it should be done by a special gang under the direct supervision of an experienced "shooter." Blasting should not be done in the vicinity of other workmen.

LAYING PIPE

There are several methods of laying pipe in general use—with screw collars, by welding or by the use of couplings. Regardless of the particular type of joints used, there are some general practices which apply:

1. Carrying irons should be used by the men placing the pipe over the ditch.

2. Skids should be of good sound material and long enough to get a good bearing on either side of the ditch. The unexpected dropping of a line in the ditch because of a broken skid or a "cave-in" due to the skid being too short may cause very serious injury.

3. Pipe should be raised off skids and lowered into ditch with small chain block and iron tripod. The use of a lever for this purpose is dangerous.

SCREW PIPE

When screw pipe is being laid, the protection of the hands of the stabber, the protection of the eyes of the man pounding collars and of the eyes of tongsmen when changing tong keys are all of enough importance to be given serious consideration.

1. The stabber should use hand leathers or heavy gloves to protect his hands from cuts.

2. The man pounding collars should wear goggles to protect his eyes from flying particles of scale, dirt or joint "dope."

3. The tongsman changing a tong key should wear goggles and the balance of the men should not be in the immediate vicinity nor looking towards him during the operation. A large number of serious eye injuries have been caused by neglect to observe such precautions.

4. Before starting to lay pipe see that the tongs are in good condition. Pins should be tight and tongs should not be sprung out of shape. The "set" of the handles should be such that tongs take a good hold on the pipe. Slipping tongs due to some such defect when "buckling up" a joint can cause bad accidents. Keyways and wedges should be in good condition so the key is firmly held in place.

5. Jack and jackboard should be heavy enough for the size pipe being laid. Too light a jack is a dangerous piece of equipment.

6. The jack man should never leave his jack when the pipe is supported by it. The kicking out of the jack board, dropping the pipe on men under or near it, is a frequent cause of accidents.

PIPE LAID WITH COUPLINGS AND WELDED LINES

The same method of handling pipe should be used as when laying screw pipe.

When laying welded lines, the welders and helpers should wear welding goggles at all times. Care should be taken to protect the men from burns from flying sparks. Asbestos leggings will protect the lower leg from burns and will keep the trousers from burning.

Oxygen and acetylene tanks should be stored and handled according to standard instructions covering the use of such tanks.

Torches and regulators should be kept in first class shape.

INSULATING PIPE

If pipe is to be insulated by a coat of tar or paint, the heating and handling of the hot material can cause serious accidents if proper precautions are not followed.

1. The kettle should be provided with a spigot for filling paint buckets, instead of dipping out the hot material. This will prevent burns from splashing.

2. Paint buckets should be entirely dry before the hot material is put into them. Moisture in the bucket often causes the hot material to fly, causing painful burns.

3. All workmen working around the kettle or handling the hot material should be required to wear goggles and gloves to prevent splashes of hot material injuring eyes or burning hands.

4. Paint buckets should not be filled full and care should be exercised to prevent spilling or splashing hot material when carrying.

5. The kettle should be placed far enough away from the ditch to insure against any possibility of the hot material being spilled or splashed on the workers.

MAINTENANCE AND REPAIRS

A great many bad injuries are caused by taking chances and repairing transmission lines under high pressure when it would be possible to empty the lines before repairs are made.

1. Safe practice demands that only in extreme cases when no alternative is possible should men be allowed to work on lines which are under pressure.

2. No welding or fire of any kind should be used on a line in which there has been gas. The small amount of gas laying in a line which is supposedly empty may be enough to give a highly explosive mixture.

3. Smoking and even the carrying of matches should be prohibited when working around live lines.

4. Sledging where gas is escaping has been the cause of some serious injuries, when a spark ignited the gas. The use of "non-sparking" tools, which are available, is a protection from this type of accident.

5. The working of men around a gate or fittings on the dead end of a line carrying pressure has taken a heavy toll of human life. If it is impossible to remove the gas from a line under such circumstances, extreme care should be taken to see that such connections are securely blocked or otherwise secured against blowing off before any work is permitted on them.

6. The tapping of any high pressure line, except by the use of a high pressure tapping kit which is used through a gate and with a stuffing box to prevent the escape of gas while tapping, is exceedingly dangerous. This practice of cutting the line with diamond points and knocking the piece in with a bar inserted through a gate is poor and will result in an accident sooner or later if followed.

CONNECTIONS

The making of connections on transmission lines is a particularly important phase of main line work and can cause serious accidents if not carefully done.

There are some general practices which should always be followed:

1. All connections which are above the ground should be screwed or flanged. No couplings or sleeves should be permitted.

2. If a sleeve is used near the end of a line or near a right angle turn, it should be securely blocked or tied in place to prevent blowing off.

3. If cold cuts or splitting chisels are used for cutting off pipe, goggles should be worn by all the men engaged in the operation and all others should be kept far enough away to be safe from flying spawls.

4. If it is necessary to do work around a gate with pressure behind it, necessary precautions should be taken to prevent it from blowing off, due to the jar of working around it.

5. Live or "flying" connections should never be made. They often cause the most serious consequences.

6. All connections should be tested either with soap suds or oil. The use of fire for testing should not be permitted.

Code Provisions on Trade Practices

FOLLOWING hearings on the proposed Code of Fair Competition for the Gas Appliances and Apparatus Industry before the National Recovery Administration on October 19 the administrator now has under consideration suggested changes, with expectation that another hearing will be had shortly.

Provisions respecting sales prices and terms, and trade practices are of particular interest to the industry and the following excerpts are taken from the proposed code as revised September 20:

Article IX—Sales Prices and Terms

Each employer shall publish and file with the Committee his sales prices and terms. Such sales prices and terms may provide reasonable differences as to:

(a) Export Sales.
(b) Sales to Large Purchasers.
(c) Sales to Wholesalers, Jobbers, and Brokers.
(d) Sales to Retailers.
(e) Direct Sales to Consumers.

The published sales prices and terms of any employer applicable to one class are not applicable to any other class, and if so used shall be a violation of this code. Sales terms shall be published by each employer to the Committee under rules established by the Committee.

On and after the effective date, no employer shall offer any product of the industry for sale at less than his published sales prices and terms.

Article X—Trade Practices

The practices and methods as set forth in the following paragraphs 1 to 12, inclusive, including the subparagraphs thereof, in this Article X, are hereby designated as unfair methods of competition, and indulgence by any member of the industry in any of the same shall be violation of this code:

(1) Making any agreement or contract after the effective date of this code the effect of which will amount to the sale and/or delivery of gas appliances on consignment.

(2) Allowing terms of payment more liberal than those stated in the published sales terms of each employer.

(3) Selling or offering to sell any merchandise with a repurchase agreement.

(4) Allowing the return of merchandise at other than the fair market value at the time of its return, except merchandise having manufacturing defects may be returned for full credit.

(5) Purchasing or allowing credit for second-hand merchandise at an amount greater than its fair market value.

(6) Using premiums in the sale of merchandise.

(7) Giving gratuities or making payments to any employee or agent of a customer or prospective customer.

(8) Selling or offering for sale any article containing false marking or branding with the intent or the effect to misleading or deceiving purchasers with respect to rating, quality, grade or substance of the merchandise.

(9) Defaming competitors by falsely imputing to them dishonorable conduct, inability to perform contracts, questionable credit standing or other false representations or the false disparagement of the grade or quality of their products for the purpose or with the effect of misleading or deceiving purchasers or prospective purchasers.

(10) Using excessive inducements or entertainment or other practices for their agents, dealers or distributors which tend to add unduly to sales costs.

(11) Imitating or simulating any trade mark, trade name, slogan, or other marks of identification of a competitor, having the tendency and capacity to deceive or mislead purchasers or prospective purchasers.

(12) Selling or offering to sell "pirated" appliances or apparatus or parts thereof. Pirated appliances or apparatus or parts thereof as used in this code shall be interpreted as meaning appliances or apparatus or parts thereof, having such a near resemblance to the original appliances or apparatus or parts thereof as to confuse or deceive the public into believing that such appliances or apparatus or parts thereof are the original. A change in the name or design of the appliances or apparatus or parts thereof shall not be deemed sufficient warning to the public that the appliances, apparatus or parts thereof are not the original. Nothing herein shall be construed to forbid the independent manufacture and/or sale of any replacement parts for appliances in use, for repair purposes only, if the design or marking is such as will not confuse or deceive the public into believing that such repair parts are of the original manufacture.

Minnesota Northern Natural's South St. Paul Line Finished

CONSTRUCTION records fell before Minnesota Northern Natural Gas Co. crews as the line into South St. Paul reached the city early in October, several days ahead of the October 15 contract date on which service was scheduled to begin to packing plants. Service to towns along the line route is practically all connected.

At Faribault Northern States Power Co. has completed its change-over. According to Amos H. Abbott, gas engineer for the company, mixed manufactured and natural gas of about 760 B.t.u. was distributed during appliance conversion work. Straight natural gas was served beginning October 26 and a second inspection and adjustment was then made on all customers' equipment. Harold E. Peckham, gas distribution engineer for Northern States Power, was in charge of the change-over operations at Faribault, a crew of about 30 men handling this work.

The distribution system is also under ground at Farmington, this work being directed for Minnesota Northern Natural by Ben Guthrie, superintendent of distribution and construction. Personnel at the new Farmington office is as follows; O. N. Anderson, formerly of Northfield, Minn., newly appointed district manager with headquarters in Farmington; C. S. Lewis, assistant to the manager; Frank Heydon, superintendent of installation; David Gunnarson, heating engineer; and Carl Anderson, fitting crew foremen. Under the Farmington district office come the communities of Farmington, Rosemount and Inver Grove.

Proposal for natural gas service in St. Paul was made the city last month by R. F. Pack, vice-president and general manager of Northern States Power Co., and with natural gas at the city's door service to this major center should be an early development.

Supplies for the Northern Natural Gas Co.'s system, of which Minnesota Northern Natural is the northern division, are being supplemented by construction of a 40-mile tap line into the Rush county, Kansas, gas reserves.

Work Beginning at Phoenix End of Arizona Gas Line

WORK at the Phoenix end of the Western Gas Co.'s Douglas-Tucson-Phoenix extension was scheduled to begin late in October. The first construction due from this end was a section across the Salt River at a point near 7th Street in Phoenix.

Phoenix offices of the Western Gas Co. have been opened at 1814 Title and Trust Building, with D. H. Tucker, Arizona manager, in charge.

Property for a city gate station to cost $5,000 has also been purchased in Phoenix.

Roy T. Richards, superintendent of operations and Thomas Hawley, superintendent of gas distribution for the Central Arizona Light and Power Co., Phoenix were in San Diego for several days early in October gathering data on change-over methods followed by the San Diego company, in preparation for change-over to natural gas at Phoenix.

NEW! A Great Little Promotion Item!

VULCAN

Holds 13 lbs. grease—Pot coating fused, like enamel—Automatic heat control keeps grease at right temperature—Size 15-in. high, 15-in. wide, 22-in. deep over all—Low gas consumption—In 3 finishes: White enamel and nickel, Black and nickel, Allegheny Metal and nickel.

FRYERS

FOR COUNTER USE

There's never been a fryer like this—designed for use not just *near* the counter but right *on* the counter.

It's small. That's why sales possibilities are so big. It holds only a limited amount of grease (13 lbs.). That's why it offers an *un*limited field of usefulness.

Where a limited amount of frying is done it will be found more economical to operate two of these counter type fryers in preference to one larger type fryer. They'll cut down costs. They'll speed up service. And no question about it.

The Vulcan Fryer is the newest member of the complete Vulcan line of heavy duty gas equipment, manufactured by

STANDARD GAS EQUIPMENT CORPORATION

18 East 41st Street, New York, N. Y.

BALTIMORE : PHILADELPHIA : AURORA : BOSTON : CHICAGO : BIRMINGHAM

Pacific Coast Distributor:

NORTHWEST GAS & ELECTRIC EQUIPMENT CO.

PORTLAND, OREGON LOS ANGELES, CALIF.

Kitchen Planning . . . the Next Step

(Continued from Page 13)

EQUIPMENT

Wooden Kitchen Compact — cabinet, sink, gas range with base, 6.5 ft. Electrolux Refrigerator—cash price unconnected.

Miscellaneous Materials (Approximate Prices)

Black Linoleum, cemented and lined	$18
Chinese Red Permatex dado, cemented	12
Aluminum dado trim	5
Red gingham curtain	1
Bakelite for folding table	3
Wooden stool	2

LABOR

Carpenter—to replace trim, build special utility cabinet and folding table	$40
Electrician—to install wall plug, switch and fixture	10
Painter—to plaster and paint walls and trim	15
Plumber—to connect sink, refrigerator and range	50

The Kitchen Compact was assembled by the gas company.

In attempting to sell its fuel and appliances through a kitchen planning service the gas company at once is faced with the consideration of price, says Mr. Cuthrell. A first step is to learn how much the customer can pay for the modernization project and style the equipment and other materials and the labor costs involved accordingly. An attractive kitchen can then be compiled which will meet the customer's pocketbook. Brooklyn Union Gas Co. is selling two styles of Kitchen Compacts, one in metal and one in wood. The wood unit sells approximately 20 per cent cheaper than the metal.

Other problems arise when the proposed kitchen is submitted to the customer, these relating to design, materials and color. Objections must be met diplomatically and care taken to see that the kitchen presents a unified whole.

Two minor problems are to be met after the customer has determined to modernize, in dismantling the old kitchen, and providing temporary cooking facilities.

A major problem is that of installation, this offering difficulty because of the many workers from outside the gas industry which must handle plumbing, carpentering, painting, flooring and electrical work. Under the Brooklyn company's plan the customer may contract for the entire work outside of the Kitchen Compact with a department store, general contractor, or home and interior decorator; or he may hire individual workers. This latter method causes difficulties since the various steps must be handled by different workmen in a definite cycle. The installation cycle which is recommended after the old kitchen has been dismantled is as follows:

1. Replace old molding and trim where necessary. Fix up walls and ceiling.
2. Install floor plugs and fix electric wiring.
3. Install all pipes for sink, refrigerator and range—with shut-offs located under the sink.
4. Level floor and lay floor covering.
5. Level, install and connect Compact with its appliances.
6. Make Compact cabinets fast to the wall with expansion bolts.
7. Paint kitchen.
8. Apply Permatex dado where necessary.
9. Attach folding tables to walls.
10. Hang curtains.

HAS YOUR
KITCHEN
KEPT UP WITH
YOU?
Your dress, hair, manicure are styled to 1933. Do you still cook in a 1913 kitchen? Poorly lighted, awkwardly arranged, drably dingy?
Yes? . . . Then you're invited to visit our brand-new Kitchen-planning Headquarters on the second floor of the Architects' Building at 17th and Sansom. We have four model kitchens to show you. All different. All gay, clever, convenient.
And our Miss Eiseman's waiting there to tell you just what to do about your own kitchen. She's a graduate decorator. She'll show you how to shift equipment to save time and steps. She'll advise you on color schemes, curtains, cupboards, floor coverings, and what-not. She'll estimate prices and sketch the project on paper.
Her suggestions can be carried out at your own convenience. No charge, and no obligation, but more fun! . . . Miss Eiseman will tell you, too, how to win a new Roper Gas Range — FREE!
THE PHILADELPHIA GAS WORKS COMPANY
WOULD YOU LIKE A
Free Face-lifting
FOR YOUR KITCHEN?
Is your kitchen showing its years? Would you like to make it young again? And rearrange it to save time and steps? Would you like to learn what's new in color schemes, curtains, cupboards? And know what every thing costs? And see what your kitchen could look like?
Foolish questions, maybe. But you'll find all the answers at our Kitchen-planning Headquarters, just opened in the Architects' Building at 17th and Sansom Streets. There are four model kitchens there. Not one or two — but "four." All different. All worth seeing.
Our Miss Eiseman's there too. She's the clever young lady who makes old kitchens modern — on paper — with drawings, samples, prices. She's waiting to work out a custom-tailored transformation just for you! Free, of course. Come talk to her today. Or tomorrow . . . at the latest!
THE PHILADELPHIA GAS WORKS COMPANY

Around its Kitchen Planning Headquarters The Philadelphia Gas Works Co. is building unusual advertising copy, some of which is seen above.

In the booklets prepared for kitchen modernizing prospects are included the elevations, a blueprint of the Kitchen Compact unit, a detail drawing of a special utilities cabinet, a page of notes and recommendations, a floor plan, samples of various materials required such as linoleum, dado, curtains, wall covering, with approximate price list of labor and equipment. The customer's own ideas are of course secured as to color scheme and general arrangement, and the proposed kitchen lay-out is designed and rendered in color.

On the cover of the booklet the individual color scheme adopted for the kitchen is also used.

Kentucky Natural Gas Co. Sells Properties

Properties of the Kentucky Natural Gas Co., headquartered at Owensboro, Ky., were sold at public auction on October 9 to W. H. Hillman and Paxton Blair, representing the Peoples-Pittsburgh Trust Co. The purchasing firm's bid was the only one received, the sale price being $880,000. Among the properties of the company included are pipe lines in western Kentucky, oil and gas leases in a number of Kentucky counties, contracts for sale of gas to the Owensboro Gas Co., Kentucky-Tennessee Light and Power Co., and Indiana-Kentucky Natural Gas Co.

Catalog on Tin Meter Issued By Pittsburgh Equitable

The "EMCO Tin Gas Meter" is the subject of a 16-page catalog recently published by the Pittsburgh Equitable Meter Co. The bulletin describes the construction and design features of the EMCO product. Parts and price lists are also included. Copies may be had by writing the Pittsburgh Equitable Meter Co., 400 N. Lexington St., Pittsburgh, Pa.

New-Type Briquet Popular with Portland Public

Redesigning of Portland Gas and Coke Co.'s briquets has stimulated demand for them tremendously. On September 30 the company booked orders for over a million pounds of the briquets. The new type is pillow-shaped in place of the old cylindrical form, and is coated in order to lessen the naphthalene odor and add cleanliness in handling.

Joplin Gas Co. Stages Successful "Friday the 13th" Sale

W. E. Carden, new business manager of the Joplin Gas Co., Joplin, Mo., staged a "Lucky Friday the 13th" sale of appliances, with exceptional results, $2700 in appliances being put on the company's lines by the one day sale. Special advertising announced price discounts for October 13 only.

Dearborn Chemical Co. Has New Catalog on Water Treating

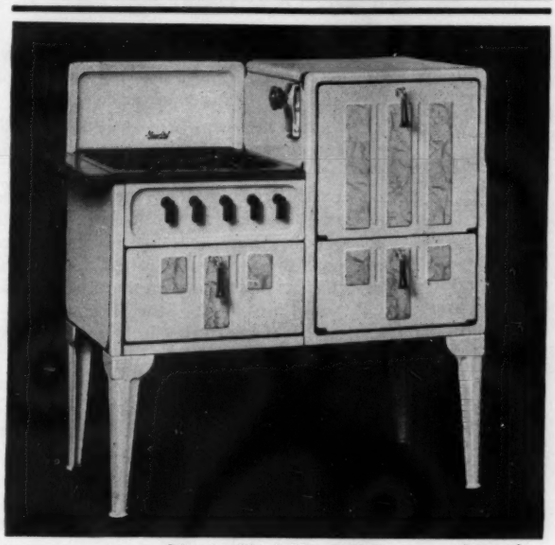
"Water Treating Units and Testing Equipment" is the title of a new catalog brought out by Dearborn Chemical Co., Chicago. A series of units for introducing Dearborn treatment to boiler feed waters and for testing boiler waters are described and information given on their operation.

Gas Service Co. New Business Dept. Breaks Heating Quota

That business is good on the Gas Service Co. system is evident from new business department records of the past few weeks. A quota of $100,000 had been set for an 11-week heating campaign, and this figure was exceeded in 4½ weeks time, according to announcement the middle of October.

Magic Chef

AMERICAN STOVE COMPANY



Magic Chef No. 204-0 Patented

Look for the RED WHEEL
When you buy a MAGIC CHEF

Magic Chef No. 1202-3 Patented

THE NEW
MAGIC CHEF MODELS
SERIES 1200 and 200

THESE beautiful Magic Chef Series offer to gas companies and dealers an unequalled sales opportunity.

Magic Chef No. 204-0 shown at top left, is porcelain enameled in Old Ivory and Green with panels in Green Marble effect.

Magic Chef No. 1202-3 is porcelain enameled in Ivory and Green with panels and back splashers decorated with an artistic tile design.

These new Magic Chef ranges come in various other attractive color combinations.

In the Series 1200 the cooking top is flush with the oven top to permit easy sliding back and forth of oven utensils. The cooking top section has a folding top buffet coverall to conceal grates when not in use. In Series 1200 a convenient drawer-type broiling compartment containing the famous Grid-Pan Broiler is a special feature.

Other Magic Chef features include the Magic Chef Non-Clog Burners, the Magic Chef High Burner Tray, the Magic Chef Automatic Top Lighter, fully insulated ovens, roomy service drawers and the famous Red Wheel Lorain Oven Regulator. Any range in these series equipped with Telechron Electric Time-Control Clock at extra cost if desired. Write for color illustrations and full description.

AMERICAN STOVE COMPANY

World's Largest Manufacturer of Gas Ranges

BOSTON • • • • NEW YORK • • • • PHILADELPHIA
ATLANTA • • • • CLEVELAND • • • • CHICAGO
ST. LOUIS • • • LOS ANGELES • • • SAN FRANCISCO

L. B. Denning

C. L. May

L. B. Denning, Jr.

M. L. Bird

Executive Changes for Lone Star Subsidiaries

IN the October issue of *Western Gas* was reported the election of Richard G. Soper and L. A. Bickel as president and secretary, respectively, of the Dallas Gas Co. A number of additional executive changes in Lone Star subsidiary companies, called for due to the death of Henry C. Morris last August, have now been announced.

L. B. Denning, president of the Lone Star Gas Co., was elected president of the Texas Cities Gas Co. by the board of directors of the latter company in September. The office was vacated by Mr. Morris' death, as was the Dallas Gas presidency.

The board also elected Chester L. May vice-president and general manager of Texas Cities Gas Co. Mr. May will also continue as vice-president and general manager of the Community Natural Gas Co., which post he has held since 1929.

Supervision of operations for the Texas Cities Gas and the Community Natural has been delegated to Mr. May as vice-president and general manager of both properties, and to facilitate operations the system has been divided into two divisions, eastern and western.

L. B. Denning, Jr., has been made general superintendent of the eastern divisions, which include Brenham, Waco, Paris and Galveston in the Texas Cities, and the following Community Natural divisions: Bonham, Greenville, Marlin, Temple, and Terrell.

M. L. Bird, formerly field superintendent for the Community Natural, has been appointed general superintendent of the western divisions in charge of El Paso and Juarez in the Texas Cities group and the following Community divisions: Abilene, Brownwood, Eastland, Frederick, Hamilton, Handley, Itasca, Pilot Point, Vernon, Wynnewood, and the Sweetwater division, which includes operation of the Stamford and Western Gas Co. and the Northwest Texas Gas Co.

Merchandising activities on both Community Natural and Texas Cities Gas Co. properties will be under the supervision of C. L. Trevitt. Mr. Trevitt has served as new business manager of the Community Natural since March, 1932, prior to that time acting as assistant head of the department. He has been with the company since October, 1927.

Annual Gas School at Ames Dated for Nov. 13-16

FROM November 13 to November 16, inclusive, the 13th Annual Gas School and Conference will be held at Ames, Ia. This important meeting will draw gas men of Iowa, Nebraska, Minnesota, North Dakota and South Dakota, from companies represented in the Mid-West Gas Association, which sponsors the school jointly with the Engineering Extension Service of the Iowa State College at Ames. An attendance of approximately 200 is expected, according to R. B. Searing, secretary-treasurer of the Mid-West Gas Association. Robert F. Galpin of the Iowa Electric Co., Muscatine, Ia., is chairman of the committee in charge.

Exhibits will be confined to distribution and metering equipment, this feature of the school being in charge of Professor L. J. Mahone of the Iowa State College. Banquet and entertainment have been scheduled for the evening of November 15.

Mr. Galpin announces the following program for presentation during the school's session:

"Oil Fogging"—Methods and checking results, by L. W. Tuttle, Public Service Co. of Northern Illinois.

"Distribution"—Unaccounted-for, stoppages and general service problems, by W. A. Pike, Iowa Electric Light & Power Co.

"Humidifying Gas"—by Mr. Hurst, C. J. Tagliabue Co.

"Problems of Changing from Artificial to Natural Gas and Their Solutions"—by C. E. Nordstrom, Sioux City Gas & Electric Co.

"Physical Gas Laws as Applied to Meters and Regulators"—by Allen D. MacLean, Pittsburgh Equitable Meter Co.

"Welded Distribution Systems"—Their advantages and disadvantages—by L. M. Rasmussen, Linde Air Products Corp.

"Diaphragms"—Source, selection, grading and treating for meters and regulators for artificial and natural gas—by Robt. L. Klar, Des Moines Gas Co. (President, Mid-West Gas Association).

"Pipe Corrosion"—Recent developments of preventive methods—by A. H. Abbott, Northern States Power Co.

"Meter Testing and Proving"—Effects of temperature on accuracy. Air conditioning of meter testing rooms—by C. B. Dushane, American Meter Co.

"The Dynamic Gas Mixer"—by Mr. Murphy, Ingersoll-Rand, Inc.

"New Developments in Standby Equipment and a Substitute Gas for Natural"—by A. Rathkey, Iowa Public Service Co.

Sprague Meter Co. Agent for Gas Line Seal

The Sprague Meter Co. of Bridgeport, Conn., announces that it is now acting as selling agent for the X-Pander Pipe Line Safety System, manufactured by the Paul G. Wagner Co. of Los Angeles, Calif.

This product is designed to seal the gas line, at the time of meter shut-off, to prevent the theft of gas; also to stop leakage and the subsequent danger of explosion.

X-Pander System utilizes an expansible rubber plug and an operating key wrench. In practice, the plug is securely hooked to the wrench, inserted in the pipe and expanded to form a perfect seal. The wrench is then unhooked and removed. The plug and wrench combination is so designed that the plug must be sufficiently expanded in the pipe to make a leak proof seal or the wrench cannot be unhooked. This feature eliminates all element of human error.

All plugs are serially numbered to enable the operating company to keep an accurate record of each installation. Plugs are made to fit the various pipe sizes and are adaptable to standard meter hook-ups. Wrenches are available in three lengths, the longest of which allows the plug to be inserted to a depth of 10 inches in the pipe, the deep insertion being a guarantee against tampering.

Propose to Substitute Natural Gas for Gas-Oil at Omaha

A proposal has been made the Metropolitan Utilities District, Omaha, Neb., by the Northern Gas and Pipe Line Co. for substitution of natural gas in place of gas-oil in the District's gas generating plant which supplies Omaha. Natural gas would be furnished for one year at a rate of 16 cents per M c.f. plus a charge of $30 per year for each M c.f. of maximum daily demand, which it was estimated would make the rate average 24 to 27 cents per M c.f.

Savings of $100,000 annually over cost of gas-oil would be guaranteed under the contract offer, Northern Gas and Pipe Line to make up the difference if the fuel saving was not realized. The proposal assumed that the District would continue to produce 550 B.t.u. gas. No action has been taken by the District's directors as yet.

Barber Gas Burner Co. Announces New Catalog, No. 34

The Barber Gas Burner Co. has just brought out its Catalog No. 3 dealing with Barber Automatic Jet Gas Burners. Specifications for the firm's line of burners for house heating and industrial uses are given together with detailed illustration of each model. Copies of Catalog No. 34 may be secured from the manufacturer, 3702 Superior Ave., Cleveland, Ohio.

DEALER LETTER NO. 3

PACIFIC GAS AND ELECTRIC COMPANY
245 Market Street
SAN FRANCISCO, CALIFORNIA

Gentlemen:

You will note that P. G. and E. cooperative advertising being released now in conjunction with the 1933 Fall and Winter Gas Heating Campaign is more adaptable to your TIE-IN requirements than ever before.

The advertisements are featuring ALL TYPES of Natural Gas heating equipment and appliances—as many as five different types being pictured and described in each advertisement.

The copy treatment conforms perfectly to the new illustrative style, each appliance getting an equal share of space. The emphasis is strictly on Natural Gas performance in QUALITY appliances.

The advertisement shown below illustrates the general style and layout to be used in this series. In the lower panel we have shown the circulating heater, floor furnace, warm-air furnace, Radiantfire, and conversion burner. The illustrations are composite drawings of well known makes.

We know of few utility advertisements of a cooperative or promotional nature that are as thoroughly usable as these. Every one of these advertisements will add substantially to the pulling power of their TIF-INS.

Be sure to take full advantage of them when they appear in your local newspaper. See your publisher for advance proofs and publication dates at once.

Sincerely,

H. M. Crawford

General Sales Manager.

YOUR TIE-IN AD HERE
TELLS PROSPECTS THAT
YOU SELL
THE APPLIANCES ADVERTISED BY
P·G·and·E·

WG 211-1133

Refrigeration Sales in Southern California

(Continued from Page 18)

stores, music stores, and other potential outlets.

GENERAL DEALER PROGRAM AIDED

Such marked increase in dealer activities has of course been immediately beneficial in the increased sale of refrigerators, but it has also been a splendid aid in the normal dealer contact efforts of the utilities. Except in very small communities, it has not been the practice of these utilities to act as distributors of appliances other than refrigerators. The reason, obviously, is that such activity would tend to offset the efforts of the regularly established trade channels, whereas, in the case of gas refrigeration, there is not the number of manufacturers, each of whose interests need be considered. The interest which the gas refrigerator has created in the minds of such dealers has opened their eyes to the possibility of selling more of the other gas appliances. The result in a number of instances has been that dealers have taken on other lines of gas equipment, or have stocked better and more complete lines. Best of all is the fact that they have a renewed interest in selling gas equipment, and in talking gas. The activity has been the opening wedge in establishing adequate relations with some retailers who have hitherto been most antagonistic toward all utilities.

Since the sale of refrigeration for apartment houses is a phase of the business which has not gotten under way with the same drive as has the domestic activity, and since such sales are necessarily quoted at less than retail prices, that business has been reserved largely to the utilities. It has been arranged for dealers to participate in "flat" business at some discount, but their participation in regular apartment business has been limited to the receipt of a small commission for active leads turned over to the utility. In such cases payment is made only upon the first actual sale made for each building so reported. The elimination of water connections has made it possible to quote in competition with "multiple hook up" electric installations in the better class of buildings, but first cost remains an outstanding obstacle to acquisition of a very desirable volume of business in the majority of average type apartment buildings. Such work is being cared for by the Architect and Apartment Division of the utility. Here, as is in case of the domestic installation, the gas refrigerator is playing an excellent part in forestalling the installation of electric ranges and of small electric heaters. Such competition has become increasingly severe with the approaching prospect of service of Boulder Dam power in Southern California. Even though 1100 B. t.u. natural gas is being served at comparatively low rates, the years of advertising by the electric fraternity has had its results. Free wiring, which is being offered by some of the local municipal electric organizations, and advertising which has little, if any regard for truth, and no regard for ethics, is producing results which call for the best promotional efforts of the gas utilities.

In this connection the gas refrigerator has again served a most convenient end. It has lent itself to advertising and publicity in a manner which has been duplicated by no other appliance. It has been possible to obtain publicity from circus stunts which could hardly have been possible with anything less new, and although lacking perhaps in the dignity which some of us feel necessary such stunts did provide a means of telling about something new.

LIBERAL ADVERTISING SUPPORT

As a part of the local advertising plan the Southern California Gas Co. placed 1000 column inches in the Los Angeles dailies during May and June, devoted to refrigeration. Approximately 13,000 column inches were placed in 92 papers in outlying districts during the same period. Throughout the season the Southern Counties Gas Co. placed approximately 12,000 column inches in 70 newspapers in its serving area. At the same time a joint advertising activity of the same two utilities, in conjunction with the Los Angeles Gas and Electric Corp., which company does not sell either gas or electric appliances, was responsible for over 1100 inches additional in the Los Angeles dailies. In addition to this advertising, which was devoted exclusively to refrigeration, tie-in-mention has been made in other advertising of these companies during that time. Twelve full page refrigeration advertisements were placed in four California magazines, some by the utilities directly, and some through the agency of the Pacific Coast Gas Association Cooperative Advertising Committee. Such space has been augmented from time to time by publicity in connection with newspaper cooking schools, in which gas refrigeration has had its part. In a few cases refrigerators have been given as door prizes at theaters, and write ups have been secured in several local trade publications. The three utilities have also conducted a joint outdoor display series consisting of 403 24-sheet posters in Los Angeles and vicinity during May and June, and 66 in July. In addition the Southern Counties Gas Co. devoted to refrigeration its permanent display boards at strategic locations in its territory, while the Southern California Gas Company made use of 60 24-sheet posters in its outlying districts.

As an adjunct of the foregoing publicity and advertising, proofs of all advertising were distributed to all gas appliance dealers in advance of insertion. A dealer and utility truck card plan was also put into effect as a corollary of the poster display campaign. The utilities supplied steel slide frames for trucks to all dealers who desired them and in some cases supplied distributors and manufacturers who in turn supplied their dealers. The plan provides for six changes a year of the car card size displays, which are copies of the outdoor displays, in season. Provision is made that dealers who handle only refrigerators will have six changes a year, and likewise with ranges or water heaters or heating equipment. The impression created by having the same cards on utility and dealer trucks, traveling over the major portion of 11 counties is not inconsiderable. A further effect of continuity has been added by providing a monthly window card service to dealers, the cards being similar to the truck cards.

As is normally done, the utilities made use of bill envelope inserts as well. Approximately a million especially prepared, colored inserts were sent out during the early part of the refrigeration season and liberal use has been made of material supplied by the manufacturer. For a period of three months one of the companies also carried a gas refrigerator advertisement on the reverse side of its bills. The joint advertising activities of the three utilities have been carried out effectively by an advertising agency of national repute.

With this activity on the part of the utilities it has of course been possible to interest refrigerator dealers to advertise on their own accord. At the present time approximately one half of the dealers are advertising regularly in their district newspapers. Several of them have made use of outdoor display boards and a few have used neon signs to distinctive advantage. While the utilities have had no radio program this year, some of the larger refrigerator dealers have made good use of the radio for the promotion of gas refrigeration. To see some of the store front display signs employed by

INSTALL Mueller Gas Era Boilers in jobs that call for utmost reliability and economy in gas-fired steam or hot water equipment. For details, write: L. J. Mueller Furnace Co., 2008 W. Oklahoma Ave., Milwaukee, Wis.

MUELLER
GAS ERA
BOILERS
NRA MEMBER U.S. WE DO OUR PART

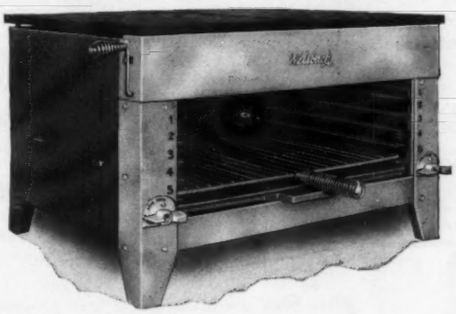
BROIL

By Means of

INFRA RED RAYS

of

NEW WELSBACH BROILER-GRIDDLE



Broils, Roasts and Does Griddle Work In

——Half the Time at

——Half the Cost

All this is made possible

by

The New WELSBACH Infra-Ray BURNER

Let us send you full description

Welsbach

COMPANY

Gloucester, N. J.

NRA MEMBER U.S. WE DO OUR PART

50 Hawthorne St.
San Francisco, Calif.

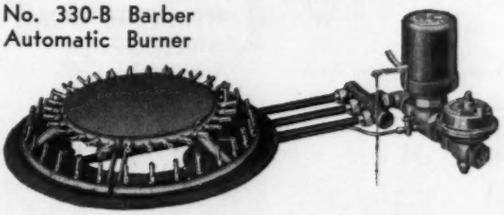
226 S. Wabash Ave.
Chicago, Ill.

BARBER

Automatic Jet Gas

BURNERS

No. 330-B Barber Automatic Burner



Illustrating No. 324-B Barber Automatic Burner installed in a round boiler. Note its simplicity of installation and the excellent scrubbing action of the flame.

NRA MEMBER U.S. WE DO OUR PART

BARBER BURNERS are low in first cost, low in operating cost, and so developed mechanically that they have reached the highest point of safety, economy and efficiency.

BARBER JET GAS BURNERS will convert any hot water, steam or furnace system into a clean, even, economical and completely automatic heater. Installation is simple and inexpensive, owing to the fact that nothing in the existing system must be replaced.

TODAY is the time to cash in on Gas Conversion Jobs

Write us today for our NEW CATALOG and NEW revised attractive DISCOUNTS. Let us tell you how we assist the Dealer with literature and dealer cooperation that will enable you to capitalize on the demand for BARBER Automatic Heat.

THE BARBER GAS BURNER CO.

3704 SUPERIOR AVE. CLEVELAND, OHIO

WARD BILT-IN THERMO CONTROL

—Is the heating appliance sensation of the year. Built into your Ward Floor Furnace, it controls room temperature at all times. Just set your *Ward Thermo-Control* for the temperature desired. Its action is so accurate and timely as to almost anticipate temperature changes. It turns on the gas before rooms become chilly and shuts off again before they become too warm.

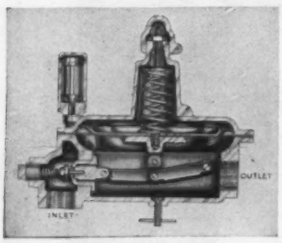
Ward Thermo-Control is built in, an integral part of the furnace. And Ward is the first manufacturer to make this sensational feature standard equipment on floor furnaces.

Write for Literature and Information About the Ward Franchise for Dealers

WARD HEATER COMPANY

Established 1909

1800 W. Washington Blvd. Los Angeles, Calif. Telephone PArkway 9171



Reynolds Products—

Products for all kinds of Pressure Reduction—for either artifiicial or natural gas.

GOVERNORS—Intermediate Pressure, Triple Outlet, Holder, Toggle Type Street.

REGULATORS—High Pressure Service, Low Pressure Service, High Pressure Line, Single and Double District Station.

VALVE—Automatic Quick-Closing Anti-Vacuum,Relief, Cut-off. Model 30: manufactured for vertical or horizontal connections.

Seals: mercury and dead weight

NRA MEMBER U.S. WE DO OUR PART

Recognized Gas Control Since 1892

Reynolds Gas Regulator Co.

Anderson, Indiana

422 Dwight Building—Kansas City, Missouri

Second Unit Santa Fe Building—Dallas, Texas

THE CLIFT

SAN FRANCISCO

GEARY AND TAYLOR STREETS

540 Rooms With Bath

Rates from $3.00 single and $4.00 double

Garage Accommodations

Dining Rooms and Coffee Shop

FREDERICK C. CLIFT, President

ARTHUR L. WATSON, Executive Manager

EL MIRASOL

SANTA BARBARA

RATES AMERICAN PLAN

For reservations write or wire THE CLIFT San Francisco

LA QUINTA

IN-THE-DESERT

Five miles from Palm Springs

THREE CALIFORNIA HOTELS OF DISTINCTION

several, one might think the gas refrigerator something to talk about.

Of course systematic window displays have been used by the companies throughout their serving areas to give added attraction to the gas refrigerator. The cumulative effect has been reasonably effective. The public is beginning to hear something about gas refrigeration, and what is still more important it is hearing and thinking a little more about gas. The fact that it has been possible to interest heretofore uninterested retailers to spend money to advertise gas appliances, far beyond their usual habit, is itself of present and future benefit to the gas industry locally. Of equal, or possibly greater value, is the fact that gas appliance retailers have begun to learn the value, in fact the fundamental necessity for field selling. Field solicitation in any manner which gives results is desirable from the standpoint of the gas industry, but a few dealers have gone into the business in an organized and efficient way. One in particular uses a telephone book arranged by street address, and calls all homes within any desirable district by 'phone. If they learn that the home is not equipped with mechanical refrigeration they plan to expend their first efforts there. They circularize the list thus gained, follow up with a letter stating that a man will call on a specified day, and the salesmen are required to follow up at the time planned for. Two of these dealers will continue their operations this winter with gas heating equipment, not forgetting refrigerators when they can sell one. Another dealer has plans under way for handling furnaces, ranges and refrigerators, throughout the year.

In the final analysis the gas refrigerator has been the mainstay of gas promotion during a most trying period. It has also made possible the current essential drive for the all gas kitchen and real kitchen modernization.

The recent perfection of the gas refrigerator has been most timely. It is gratifying, as well as a hopeful indication of renewed vigor in the industry to see the efforts which are being made by the American Gas Association to interest member utilities in the potential benefits which an adequate refrigeration program can provide. It may not be expecting too much to hope for a unity of effort in this work which can overshadow any similar action of our industry within recent years.

Pressure Alarms Installed on Lone Star System Lines

Newly developed pressure alarm installations are now being made on Lone Star Gas System properties. One type of alarm is used for high pressure and another for low pressure lines, the instruments being installed in company offices and in the homes of local managers and outside foremen.

L. B. Rogers Named Tennessee Gas Co. Manager at Columbia

L. B. Rogers has been named manager of the Tennessee Gas Co. at the Columbia, Tenn., office, succeeding J. P. McGrew. Mr. Rogers was formerly located in Shelbyville, Tenn., engaged in retail chain store management.

Automatic Operation of Low Pressure Holders

(Continued from Page 16)

compression costs at Marysville. The demand for gas at Chico on this was 488,200 cubic feet.

The advantage of the automatic control of the holders and boosters at Chico is that peak load requirements are taken care of without an attendant, thereby allowing the transmission line to operate at a more uniform rate of flow and at lower pressures.

Reorganization Plan Set for Oklahoma Natural

ON November 8 United States Judge F. E. Kennamer at Tulsa will sell at auction the Oklahoma Natural Gas Corp. With approval of the company's reorganization under a new corporate name, and sale of the property, the receivership action brought by certain stockholders will be dropped.

In the reorganization A. E. Bradshaw, former executive vice-president of the First National Bank and Trust Co. of Tulsa, becomes president of Oklahoma Natural. Robert W. Hendee, president for the past year, becomes vice-president and is succeeded as a director by Mr. Bradshaw. Frank E. Kistler, former chairman of the board, will be chairman of the finance committee. A complete new financial set-up is provided in the reorganization plan. There has been no announcement yet as to the new name for the company.

Sale of the company's assets and liabilities follows the filing of a suit by Gas Utilities, Inc., holding company of Oklahoma Natural, seeking to collect loans in excess of $3,000,000 made to the subsidiary. Under the reorganization plan Central Utilities will advance money to pay interest and sinking fund on bonds now in technical default. The general mortgage bond held by Gas Utilities, Inc., will be extended to November 1, 1941, and demand or short-term notes will be cancelled. Gas Utilities, Inc., will receive $3,500,000 of Series B notes and something more than $400,000 shares of common stock in the new company. Oklahoma Natural first mortgage bonds will be assumed by the new concern.

From Gas Utilities the new company will receive capital stocks and assets of Oklahoma Building Co., which owns the Oklahoma Natural Building in Tulsa, all assets of Texokan Oil Co., an important interest in the Natural Gas Producers Corp., as well as a one-year option to purchase outstanding capital stock of Muskogee Natural Gas Corp. and the Southwestern Natural Gas Co.

Albuquerque Natural's Lines Declared Common Carriers

Pipe lines of the Albuquerque Natural Gas Co., Albuquerque, N. Mex., have been declared common carriers by the State Corporation Commission, and the company has been ordered to accept gas for transportation from independent operators in the Kutz Canyon area for points in New Mexico.

"MODERNIZE as you repair"

THE SPRAGUE METER COMPANY

BRIDGEPORT, CONN.

Los Angeles, Calif. San Francisco, Calif.

Davenport, Iowa

Newark, Ohio. Houston, Texas.

If you would keep in touch with the Natural Gas and Butane industries, send a check for $2.00 to

WESTERN GAS
810 South Spring Street, Los Angeles

Name.....

Company.....

Position Occupied.....

Street Address.....

City and State.....

Subscription Rates: I Year $2.00; 3 years $5.00; Foreign $3.00 per year.

WATER SEAL

The word is going the rounds of the industry—"Do you know about the Dearborn Chemical Company's NO-OX-ID Water Seal?"

This seal has every feature of desirability: it is inexpensive, has great adhesive qualities, does not pile up, unaffected by weather and is absolutely reliable as a rust preventive. Investigate! Full information sent gladly upon request.

DEARBORN CHEMICAL COMPANY

Los Angeles: 807 Mateo Street, Phone TRinity 3385
San Francisco: 421 Bryant St., Phone SUtter 8688

NO-OX-ID IRON RUST
The Original Rust Preventive

SOUTH CHESTER STEEL PIPE

Excels for Gas Service

The unusual care given to accuracy of diameter and welding qualities, makes Chester Pipe a favorite for gas lines.

SOUTH CHESTER TUBE CO.
Chester, Pa.

MORE MODERN THAN EVER
HOTEL PLANKINTON
RADIO
IN YOUR ROOM WITHOUT CHARGE
Completing our $200,000 Modernization Program

ALL ROOMS WITH BATH AND RADIO $2. UP

Breakfast.....25¢
Lunch.....35¢
Dinner...65¢ and up

AGAIN THE FINEST HOTEL IN MILWAUKEE
NOW UNDER NEW MANAGEMENT

Ownership Change for Ozark Pipe Line, and Citizens Gas Co.

OZARK Pipe Line Co. and its affiliate, the Citizens Gas Co., Parsons, Kan., have been purchased from Fred Garrison and a new corporate organization established with the following directorate: A. S. Hopkins, president; E. A. Warren, secretary-treasurer; both of Neodesha; with three additional directors, S. H. Hale and Hugh Edward Hale, Independence, and David Flynn, Kansas City.

A. S. Hopkins, president, is former president of the Standard Oil Co. of Kansas. Mr. Warren, secretary-treasurer, held similar office with Standard Oil of Kansas for many years and until recently has been vice-president of that company.

Offices of the new company will be established in the West Side Union State Bank Bldg., 22nd and Main Streets, Parsons, Kan.

Ozark Pipe Line delivers gas to the Citizens Gas Co. for distribution in Parsons. Gas supplies are being increased considerably by local field development and some line construction, bringing the available open flow to 30,000,000 cubic feet daily.

Mr. Garrison, organizer of the Ozark Pipe Line Co. and the Citizens Gas Co., will continue to work with the new organization.

Accountants' Conference Held for Byllesby Subsidiaries

Byllesby Engineering and Management Corp. scheduled its 14th Annual Accountants' Conference from October 23 to 26 at the Morrison Hotel, Chicago. B. F. Braheney, vice-president of the company, presided over the conference which was attended by senior and junior accounting executives of Byllesby subsidiary companies.

Capacity House at Portland Cooking Demonstration

Portland Gas and Coke Co. cooperated in the staging of a major cooking school, sponsored by the Oregon Journal, at the Portland Public Auditorium October 10 to 13. The auditorium seats 4800 and on the last session of the school it was filled to capacity, hundreds being turned away.

Irrigation District to Substitute Gas Engines for Electric Motors

The Irrigation Board of East Contra Costa Irrigation District, Calif., has been authorized by the district's voters to substitute natural gas engines for power now purchased. Bonds in the amount of $76,000 will be issued, to finance purchase and installation of 25 natural gas engines according to present plans.

American Stove Co.'s Los Angeles Office at New Address

E. B. Hanmer, manager of the American Stove Co.'s Los Angeles office, announces the removal of the company's offices to 2458 Hunter Street, Los Angeles. Display floor space has been more than doubled at the new location.

Bridge Repair Advances Prospect for Gas at North Vancouver

After several years delay, gas is about to be supplied to North Vancouver, B. C. and surrounding district. The B. C. Electric Power & Gas Co., Ltd., had completed negotiations and had started erection of a gas holder at North Vancouver; a special valve had also been designed for use on the main which was to be laid across the Second Narrows bridge from Vancouver two years ago. An accident to the bridge and prolonged delay in governmental action for its repair caused a gap which it was impossible to close in the service main. Repairs are now under way, and on completion the proposed gas extension can go forward.

Mobile Gas Service Corp. Formed to Reorganize Mobile Gas Co.

Reorganization of Mobile Gas Co., Mobile, Ala., has been proposed in a communication to bondholders of the company by the Mobile Gas Service Corp., formed to effect the reorganization. According to W. W. Winter, vice-president, the reorganization plan provides exchange for outstanding 7 per cent bonds of a 5 per cent bond for one-half the principal, and a 9 per cent income-bearing bond for the other half, both secured by a first mortgage lien upon the company's property.

Iowa-Neb. Light & Power To Sell Gas Refrigeration

At the recent annual sales meeting held by Iowa-Nebraska Light & Power Co. announcement was made by Stanley Taber, assistant general manager in charge of merchandising, that the company would enter the gas refrigeration field for the first time. Advertising and sales promotion budgets have been increased and the company is going after gas refrigeration in a progressive way.

Appraisers Being Appointed for Casper System Purchase

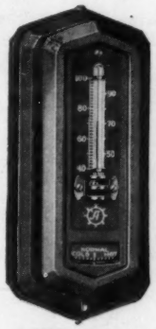
The city of Casper, Wyo., has appointed G. M. Orr, consulting engineer of Minneapolis, Minn., as its representative to appraise the New York Oil Co.'s gas distribution system which the city has elected to purchase. New York Oil is being asked to appoint its own appraiser, and a third appraiser will be named by the city and company appraisers jointly, the three to make up a board of appraisers to establish the valuation of the gas properties involved in the city purchase.

Improvements to So. Counties System at Oxnard

Distribution system improvements are under way for Southern Counties Gas Co. at Oxnard, Calif. Some 3,000 feet of 6-inch main is being laid, and also a number of 2-inch copper laterals. The Oxnard improvements will be complete by January 1.

Southern Counties also plans to run a 2½-mile extension to the new Camarillo State Mental Hospital.

DEPENDABLE CONTROL



MODEL 80T

Compact—Simple—Positive Control for Conversion Burners—Space Heaters—Central Heating Installations.

The Model 80-T Thermostat is modern in design—simple two wire magnetic action—positive accurate Control.

The Model 74 Solenoid Valve—positive operating—exceptionally quiet—incorporating a time tested principle of operation.

MODEL 74

Priced to meet the popular demand. Write today for complete details.

AUTOMATIC PRODUCTS COMPANY

121 North Broadway
Milwaukee

PAPICO
ODORIZERS
for Natural Gas Systems
Write for Engineering Data
HARRY F. HALDEMAN, INC.
ENGINEERED PRODUCTS
411 West Fifth St. Los Angeles, Calif.

The Goodman Stopper

The Reliable Shut-off for Street Mains

Equipped with Improved Patented Locking Sleeve, which locks both handles to the pipe. Stopper cannot slip. Gas cannot pass.

Safety Gas Main Stopper Co.
523 Atlantic Avenue, Brooklyn, N. Y.

Pac. Coast Rep.: C. B. Babcock Co.
135 Bluxome Street
San Francisco, California

NRA MEMBER U.S. WE DO OUR PART

LOW PRICED USEFUL OUTFIT

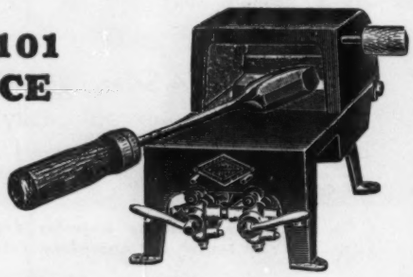
The Johnson No. 8 Torch and Melting Pot makes a practical addition to any shop. Melts soft metals. The burner may be turned to any angle or removed and used as a powerful hand torch.

HIGH-SPEED MELTING FURNACE

The Johnson No. 305 is a fast, economical furnace for melting up to 300 pounds of soft metal. Has special side outlet valve for drawing off molten metal. The No. 305 is one of a complete line of Johnson Melting Furnaces.

JOHNSON NO. 101 BENCH FURNACE

The old standby—and most widely used bench furnace made. The Johnson No. 101 will heat soldering coppers up to 12 pounds per pair and is very useful for heat-treating small tools and parts. Write for our catalog.



JOHNSON GAS APPLIANCE CO.
Cedar Rapids IOWA
Pacific Coast Representative—C. B. BABCOCK CO.
135 Bluxome St., San Francisco, Calif.

Outstanding in
MINNEAPOLIS
FOR
LOCATION
COMFORT
AND
MODERATE
RATES

SINGLE *with bath* $2. UP
SINGLE *without bath* $1.50 UP

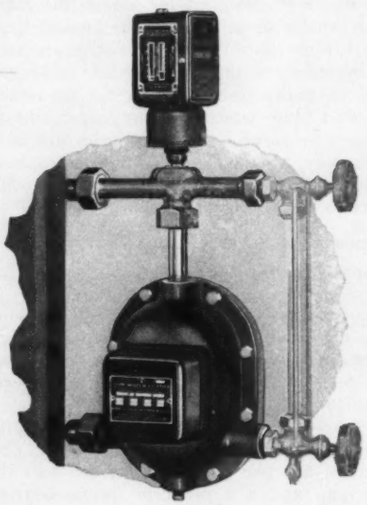
Garage Attendants relieve you of your car worries at the door

Fixed price meals in Dining Room and Coffee Shop.
THEODORE F. STELTEN
MANAGER

Andrews
HOTEL
4TH STREET AT HENNEPIN AVE.

New Control Provides Low Water Protection for Steam Boilers

Minneapolis-Honeywell Regulator Company, Minneapolis, Minn., has announced a new bellows-sealed, packless construction low water cut-off, duplex switch and water feeder. The new control provides protection



against hazardous low water conditions in steam boiler operation. It is designed for gauge glass mounting.

The boiler fire may be shut down and remain so until the boiler is manually refilled this being accomplished with the low water cut-off which is connected into the electric circuit so that if a low water condition occurs a mercury switch cuts off all power; or, the fire may be shut down and simultaneously an automatic water valve will open to allow refilling of the boiler.

The low water cut-off and silent solenoid valve supply this automatic safety control. If the water feeder valve is not used, the connections provided for it may be used to operate an alarm bell. The water feeder valve is installed directly in the cold water inlet.

Commission Asks Louisiana Companies to Install Free Service Pipe

All operating gas companies in Louisiana have been requested by the Louisiana Public Service Commission to adopt a policy of installing service pipe from the property line to the consumer's meter at no cost to the customer. The commission estimates that an average saving of $15 will be made for each new customer. Experimental application of the new policy will be made during October and November by the Louisiana companies.

Merco Nordstrom Valve Co. Announces Two New Bulletins

The Merco Nordstrom Valve Co., subsidiary of the Pittsburgh Equitable Meter Co., has recently issued two new bulletins. "Nordstrom Lubricated Plug Valves for Oil and Gas Well Drilling" describes the application of these valves on boiler installations, steam, water and mud lines, blow-out preventers,

Christmas trees and tank battery service. A section of this 20-page catalog is devoted to Timken Michigan "Screw Lift" Drilling Through and Master Control Plug Valves.

"Timkin Michigan 'Screw Lift' Plug Valves" is the subject of a second catalog. The complete line, consisting of standard, high temperature, high pressure valves, is described in this bulletin.

The two bulletins are profusely illustrated and give specifications. Copies may be secured by writing the Merco Nordstrom Valve Co., 400 N. Lexington St., Pittsburgh, Pa.

Fuel Oil Tax Upheld; Gas Furnace Sales May Benefit

Sale of gas furnaces are expected to prove easier in future in British Columbia as result of settlement of the long drawn out legal argument on the legality of the fuel oil tax. After numerous cases and appeals this tax has now been declared legal by the Privy Council in London, England, supreme court of the British Commonwealth of Nations. This decision will set in action the tax on fuel oil consumed in domestic and commercial oil burners in B. C. on the basis of one half cent per gallon. Oil burner owners and distributors joined in the extended battle in the courts to have the tax declared ultra vires. With the general trend towards automatic heating plants the imposition of the new tax is expected to assist sales of gas furnaces at Vancouver, Victoria, New Westminster.

Volume on "Public Utilities and the People"

Banks, Upshaw and Co., publishing firm of Dallas, Tex., has brought out a volume by Henry M. Robinson entitled "Public Utilities and the People." The book is designed for employee education and public relations work, presenting basic facts on utility operation and mutuality of interests between utilities and their customers. Among other chapters are those on: What Is a Public Utility; Principles Under Which Utilities Are Regulated; Franchises; Fair Rate of Return; Municipal Ownership or Operation of Public Utilities; Management; The Value of a Public Utility.

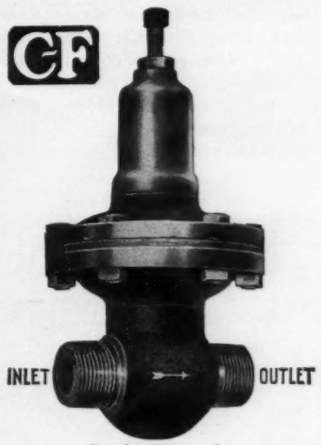
Former President Amarillo Gas Co. Dies Following Operation

Harry M. Brown, former president of Amarillo Gas Co., Amarillo, Texas, died on October 6 at Amarillo following an operation. He came to Amarillo from Clarkesville, W. Va., nine years ago to become associated with the gas company. He was 56 years of age.

Automatic Natural Gas Heating Display at Lincoln, Nebr.

Iowa-Nebraska Light and Power Co., conducted a display of automatic natural gas heating equipment at the Lincoln Home Appliance and Radio Show held in Lincoln, Neb., late in September.

For Extreme HIGH PRESSURE SERVICE



Little Hercules Gas Regulator

THE Little Hercules Regulator weighs only 8 pounds, yet is capable of controlling inlet pressures up to 1000 pounds. Such pressures it will reduce to anything between 5 and 100 pounds as required. It is intended for use in conjunction with such a device as the Fulton House Regulator, since competent engineers do not favor carrying high gas pressures to the point of distribution with only a single valve to govern it.

The Little Hercules is also constructed as a relief valve which will give excellent service wherever a small spring type relief valve is required.

Chaplin-Fulton equipment for all needs of gas regulation and for various other forms of pressure control has been in successful use over forty years. Correspondence on any specific need is invited. Literature on request.

The Chaplin-Fulton Manufacturing Company

Organized 1884—Oldest Builders of Gas Regulators in the Country. Regulators in all Sizes from 1 inch to 24 inches; for all service, 1 oz. up to 2,000 lbs. pressure to square inch.

28-40 Penn Avenue Pittsburgh, Pa.

Representatives: PARSONS ENGINEERING CO., Los Angeles, Calif., San Francisco, Calif.
WESTCOTT & GREIS, Inc., Sales and Service, Dallas, Tulsa
JNO. W. CRAWFORD, Sales Engineer, 1855 Industrial Street, Los Angeles, Calif.
Or Any Jobber

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Just Published!

. . . The Book of Stainless Steels, A Book for Users! Published by the American Society for Steel Treating. Edited by Ernest E. Thum, Editor of Metal Progress.

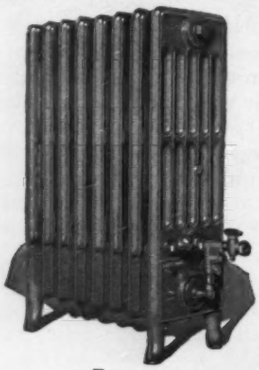
. . . The only book in the world which describes properties of principal types of stainless steels. The manuscript was specially prepared by 75 leading authorities. Includes chapters by experts in consuming industries telling of successful applications.

. . . Hundreds of pre-publication orders have already been received from industrial concerns, libraries, colleges and individuals. On sale October 1.

200 illustrations, including photographs, charts and diagrams. 600 pages. 6 x 9. Cloth bound. Price $5.00, postpaid. Order YOUR copy today! Satisfaction guaranteed or money refunded.

Book Department
WESTERN GAS
810 So. Spring St., Los Angeles

AGP
GAS-FIRED
STEAM RADIATORS



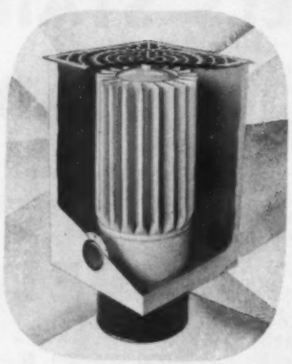
Embody every modern feature of American Radiator design. Slim tubes provide maximum contact of air to heating surface. Screw nipple construction does away with unsightly, dirt-catching tie rods. Provides maximum strength. Especially necessary in a long radiator.

In-Airid air venting valve. Installed *inside* the radiator. Thermal control, controls gas supply according to radiator temperature. Blue flame, Venturi type burner.

AMERICAN GAS AGP PRODUCTS CORP.

40 West 40th Street, New York, N. Y.

Division of AMERICAN RADIATOR COMPANY



1′ 10′

size sheet used

The Electrogas Floor Furnace No. 26, shown above, contains 17 square feet of active heating surface—much more than any other make of comparable size.

NRA WE DO OUR PART U.S.

Six sizes available
New, attractive sales manual will be mailed to you on request.

Also Basement Furnaces.

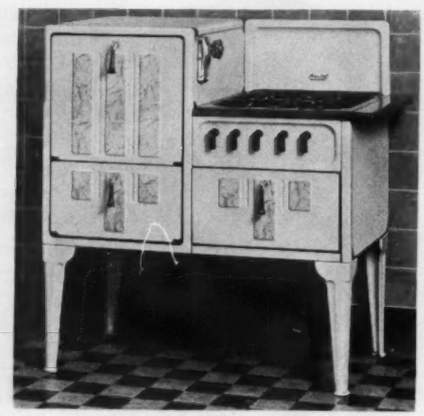
Electrogas

FURNACE & MANUFACTURING CO.
4575 Bayshore Blvd., *San Francisco*
164 South Central Ave., *Los Angeles*

American Stove Outlines Magic Chef Fall Campaign

IN conjunction with the introduction of the Series 200 and 1200 Magic Chefs, the American Stove Co., Cleveland, Ohio, has produced a new portfolio outlining its fall, 1933, campaign, along with a set of new handbook pages and folders giving particulars of the new models.

The campaign portfolio is prepared in large size, 11 by 16 inches, and is entitled "The Big 4," referring to four factors in the company's promotional program—the Magic Chef line, national advertising, exhibits at A Century of Progress Exposition, and local sales helps. Each of these items is covered in the portfolio, of particular interest being the resume of the company's 15-year national advertising program in consumer magazines. National advertisements scheduled for fall months are reproduced in full size.



Series 200 Magic Chef

Series 1200 Magic Chef

Combustion Engineering Data in Booklet by Lee B. Mettler Co.

Lee B. Mettler Co. has prepared a 52-page booklet on burner specifications, installation drawings, and pertinent combustion engineering data. In addition to sections covering the Mettler line of entrained combustion gas burners, well illustrated with photographs and drawings of various models, the booklet contains a section of useful tables and general information pertaining to combustion engineering. Among the subjects treated are refractory materials, gas piping, pressure loss through fittings, draft and chimneys, definitions of combustion engineering terms, fuel selection, and factors of evaporation. Copies may be secured from the Lee B. Mettler Co., 406 South Main Street, Los Angeles, Calif.

Regulator Station Completed for Coffeyville Electric Plant

A new regulator station has been completed by Trinity Oil and Gas Co. near Coffeyville, Kan. The station regulates gas for delivery to the Coffeyville electric light plant, which is using 1,100,000 cubic feet daily. Capacity of the station is 50,000 cubic feet per hour.

Oklahoma Communities Decline Municipal Systems

Two Oklahoma communities have decided to go no further with plans for municipal gas distribution. A newly elected administration in Perry is declining a $34,000 federal loan recently announced as approved by the R. F. C. for a municipal gas distribution system, refusing to further increase the city's bonded indebtedness. The town of Perry is served by the Apache Gas Co.

City commissioners of Stillwater have voted against calling a special election on the question of laying a municipal gas distribution system.

Contract Let for Laying of Two Illinois Laterals

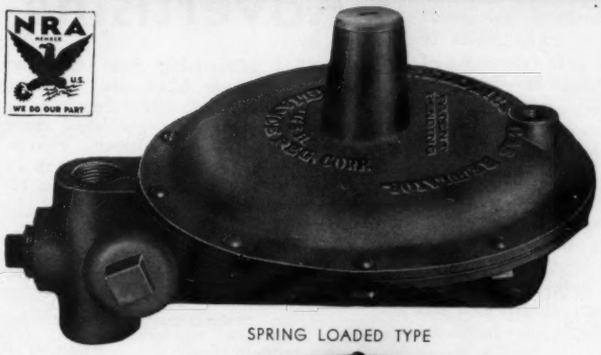
Central Pipe Line Co., Springfield, Ill., recently incorporated as a subsidiary of the Panhandle Illinois Pipe Line Co., let a contract in October to Williams Bros. Construction Co. to build two lateral lines, one a 6-inch line from Bartonville to Canton, Ill.; the other a 6-inch and 4-inch line from Danville to Hoopeston, Ill.

The Canton line will link up to the Central Illinois Public Service Co. group now serving Canton, Havana, Bushnell, Lewiston, and Cuba. The Hoopeston line will serve Hoopeston and Rossville, also supplied gas by the Central Illinois Public Service Co.

Vocational Classes Held in Gasco Headquarters at Portland

A free class in food preparation and home laundering is being conducted twice daily in the Public Service Building, Portland, Ore., sponsored by the Chamber of Commerce Vocational Committee to train young women for work in household service and the various food trades. Each class is limited to 12 and sessions are of two hours duration. Portland Gas and Coke Co.'s demonstration kitchen and other facilities are donated for the classes.

RELIANCE



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REGULATORS

MAINTAIN UNIFORM PRESSURE

for

MANUFACTURED, NATURAL

and BUTANE AIR GASES

• Detailed Information on Request

RELIANCE REGULATOR CORPORATION

1000 Meridian Ave., Alhambra, Calif.

Manufacturers of Gas Regulators for All Purposes

DIRECTORY OF THE INDUSTRY

Byllesby Engineering and Management Corporation

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231 South La Salle Street, Chicago

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COST SYSTEMS BUDGET PLANS

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Telephone ADams 0512

QUIET

GENERAL MAGNETIC GAS VALVE FEATURES: Electric Hum Eliminated, ½-3" sizes. Low and High Voltage. Built for High Pressure Gas. Made in slow-opening types. Simple in Design—Infallible in Operation—Low in Price.

GENERAL CONTROLS CO., LTD.

1539 Folsom St. San Francisco

Jensen Instrument Company Los Angeles Distributors

SHEER 31-A MOTOR GAS VALVE Now Entering Its Third Year

LEADS IN PERFORMANCE AND LOW PRICES

Also Hi-Lo Gas Valve, Step-Opening Gas Valve, Thermostats, Safety Pilots, Limit Controls, Space Heater Regulators, Humidifiers, Etc. . . . .

WRITE FOR CATALOG

H. M. SHEER CO., QUINCY, ILL.

GAS PIPE LINE MAP

Compiled by the Editors of WESTERN GAS

Size 45" x 45"

The most comprehensive published; covers the 22 western states in detail. Gives gas fields, names of natural gas communities; sizes of pipe lines and names of pipe line companies.

Printed on Cloth, $3.50

WESTERN GAS

810 South Spring Street Los Angeles, Calif.

The heater that smiles while it warms

FRASER

Radiant Front Console

Imagine a circulating heater with all the added advantages of a cheerful open fireplace. It is absolutely new—a revolutionary contribution to gas heating.

Manufactured by

Fraser Furnace Company

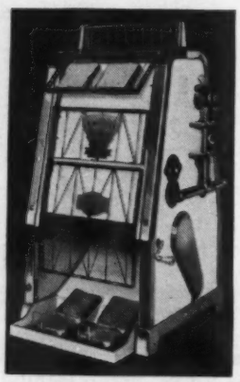
Stockton, California

Distributed by

H. R. Basford Company

San Francisco Los Angeles

It's getting easier *and easier . . .*



The **SAVORY MODEL P D** will make as many as 360 slices of perfect toast per hour at a cost of only ¼¢ to 1¾¢.

Whenever a man seriously begins to study the question of toast-making machines, we give a cheer! We know that if he actually compares dollar for dollar the cost of the machine, of installation, of current versus gas, he will order the Savory radiant gas Toaster.

The Savory radiant gas Toaster costs only from ¼¢ to 1¾¢ per hour to run.

The Savory radiant gas Toaster need not be watched—it is *really* automatic.

The Savory radiant gas Toaster *does not burn toast.*

Write for full particulars to Savory, Inc., Dept. WG-11, 591 Ferry Street, Newark, N. J.

SAVORY

radiant gas

TOASTERS

Effect of Altitude on Gas Appliance Operation

THE United States Department of Commerce Bureau of Standards has issued Research Paper No. 553 on "The Effect of Altitude on the Limits of Safe Operation of Gas Appliances" by John H. Eiseman, Francis A. Smith and Cecil J. Merritt, all of the Bureau of Standards. Mr. Merritt is research associate representing the American Gas Association. The paper was first printed in the Bureau of Standards Journal of Research, Vol. 10, May, 1933.

The effects of altitude were determined from sea level to 11,000 feet on the limits of safe operation of nine different gas appliances operated with a mixed city gas and in one case with propane. The following conclusions were reached:

"The effects of altitude on the limits of safe operation were found to be nearly the same for all of the appliances tested, with the exception of radiant heaters, which appeared to be more affected than other appliances. Excepting the radiant heaters, the maximum safe gas rate, in B.t.u. per hour, is reduced between 3 and 4 per cent of the safe rate at sea level each thousand feet of elevation.

"It is a simple but only roughly approximate general rule that an appliance, adjusted to take the same ratio of primary air to gas at two altitudes, can, without other adjustment, burn completely the same number of cubic feet of gas per hour at both altitudes. It will also receive the same volume of primary and of secondary air and will deliver the same volume of flue gases of the same composition at both altitudes. All of these volumes are as measured at the local barometric pressure at each altitude.

"To construct an appliance for safe use at a high altitude, it must be designed as a whole to burn safely at sea level an appropriately greater quantity of gas. Some data are given from which preliminary estimates may be made of the necessary size of flue passages for certain types of appliances.

"The effect of a change of altitude on the injection of primary air is not great enough to be detected from the appearance of the flames.

"Unaerated or yellow-flame pilots are unaffected by changes in altitude, unless they are "smothered" by products of combustion from the main burner.

"At the normal rate in B.t.u. per hour specified by the manufacturer, the percentage of primary air required to make the flames lift from the ports is reduced for each trousand feet of elevation by about 1.25 per cent of the total air required. The rate at which a given mixture of gas and air can be delivered from a port without causing the flame to lift is reduced about 4.5 per cent per thousand feet of altitude if rates are expressed in B.t.u. per hour, or about 1.75 per cent if they are expressed in cubic feet per hour.

"The effect of altitude on the efficiency of the top burner of a range was negligible.

"The temperature of the flue gases has little relation to the altitude, but is almost entirely a function of the rate in B.t.u. per hour.

"The effect of altitude in reducing the amount of gas that can be burned completely in a calorimeter was found to be the same with propane as with mixed city gas. It is concluded that the effects would have been the same had the comparison been made with other appliances or other gases."

Classified Advertising

Classified advertising five cents per word; minimum $2.00 per insertion. Situation Wanted advertisements up to 50 words will be published three consecutive issues without charge. Small professional cards 1-in. deep by 21 ems wide are $6.00 monthly on 12-time contract.

Situations Wanted

Meter repairman desires position. Twenty years experience in repair work, 15 years shop foreman. Good references. In reply address Box E-235, *Western Gas,* 810 South Spring St., Los Angeles, Calif.

Accountant — Bookkeeper. Over twenty years practical experience. Can take complete charge. Furnish financial and co-related statements. Also Federal Taxes. Any location. Very moderate salary. Address Box E-237, *Western Gas,* 810 South Spring St., Los Angeles, Calif.

Electrogas Furnace Co. Brings Out New "Junior" Model

The Electrogas Furnace & Manufacturing Co. announces introduction of a new type of Basement Furnace, the "New Junior Electrogas," representing four years in laboratory experiment by the company's engineering department. The Junior model is simple in construction with a high percentage of radiation surface, plus a proportionally large air circulation space.

In addition to the Junior type Electrogas has perfected a Senior model with the heating principle of the stream lined Hollow-fin-Element which, together with electrical ignition was originated by the company in 1919.

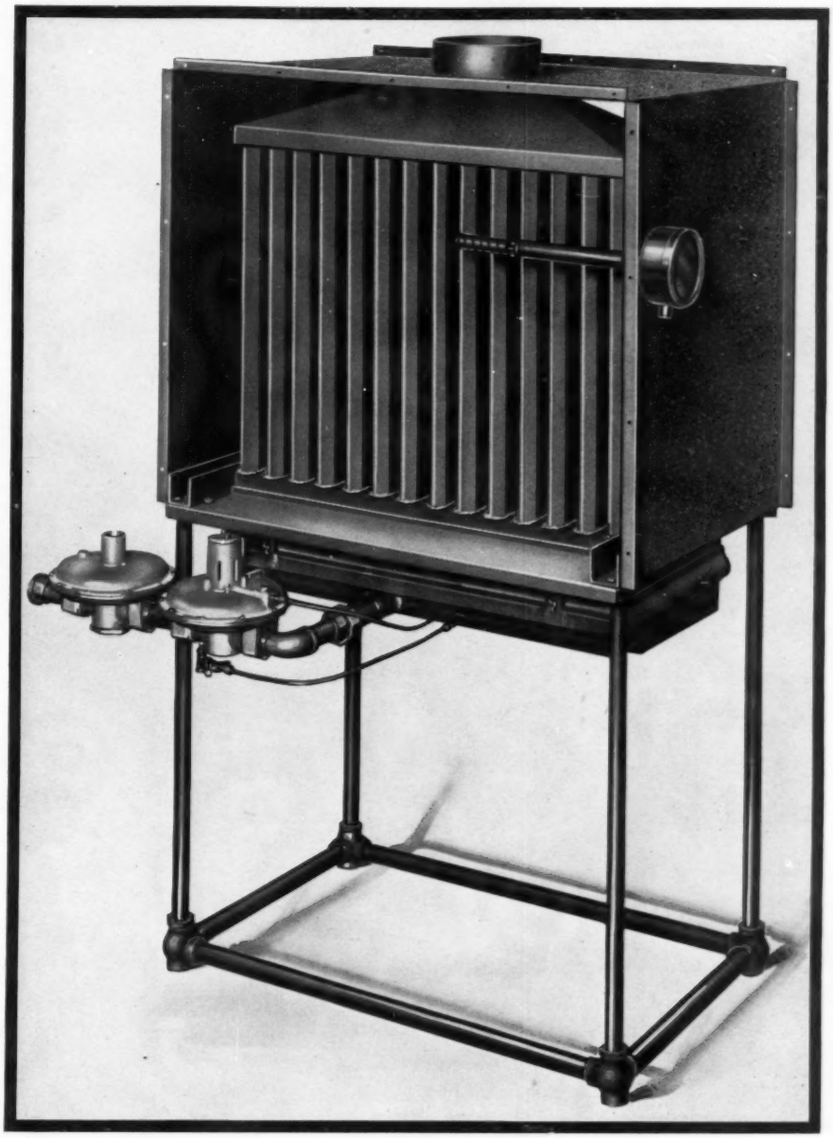
Tampering with Service Prohibited by Ordinance

An ordinance prohibiting tampering with public utilities services has been adopted by the city of Garber, Okla. Connecting, disconnecting, or otherwise tampering with meters, meter boxes, or meter box housings, pipe, wire, or conduits having to do with meters, meter boxes, or box housings, by persons not authorized, is prohibited. Violation is made punishable by a fine of $19 or 10 days imprisonment in the city jail, or both.

McAllen Offices Moved

Offices of the Rio Grande Valley Gas Co. at McAllen, Texas, have been moved to the Dr. A. B. Cockrum Building on South Main Street, following six years' location in the Nelson Building.

PAYNE CB FURNACES



Large capacity in extremely compact space. For use only with blower on combined heating and ventilating jobs . . . Full automatic control.

THE PAYNE CB Furnace is made in five (5) sizes, the single units ranging in size from 68,000 to 240,000 B.t.u. capacity. For installations requiring greater capacity the units are combined in a battery under one casing.

■ Built of the same superior, high quality materials which have made other Payne products outstanding leaders. Cast iron fire box, 14 gauge radiators, welded gas-tight.

■ Commercial departments of gas companies can recommend these units with unqualified confidence and with our assurance that as a satisfactory load builder they cannot be excelled. Our engineering department will gladly furnish complete plan and detail layout with set of blue prints and specifications for any job, large or small where these are to be used. We will cooperate with you through our dealer organization or qualified heating and ventilating contractors or engineers.

■ We have developed and perfected this model over a period of three years and have had it installed in dozens of jobs. A very small part of the list of public buildings heated with Payne CB Furnaces is here given.

WARDMAN THEATRE (Whittier, Calif.) • PALACE THEATRE (Las Vegas, Nev.) PALM SPRINGS THEATRE (Palm Springs, Calif.) • BULLOCK'S WESTWOOD STORE (Westwood, L. A., Calif.) • MUNICIPAL PARK AUDITORIUM (San Diego, Calif.)

NRA MEMBER U.S. WE DO OUR PART

PAYNE FURNACE & SUPPLY COMPANY

338 North Foothill Road
Beverly Hills • California

NRA MEMBER U.S. WE DO OUR PART

THE SELLING PART of the Range

NEW Robertshaw design and engineering is ever apace with the industry it serves—this new Model FC Robertshaw combination oven valve and oven control, independently operated, provides a neat and convenient assembly for the new table top and console models.

CHECK up all the features of the modern gas range and the one that is most talked about is the oven control . . . the outstanding reason why most women feel justified in buying a new range!

Make sure, then, that your ranges have an oven control worth talking about . . . an oven control that in long-time service will actually do all the things you claim for it . . . made by the company that has been specializing in gas thermostats for 30 years and is recognized throughout the industry for manufacturing and financial stability.

That means nothing less than a genuine Robertshaw AutomatiCook . . . the acknowledged standard of the entire gas range industry, since the great majority of all gas range makers provide the Robertshaw as standard equipment.

THE ROBERTSHAW THERMOSTAT CO.
Youngwood, Pa.

ROBERTSHAW "Automati-Cook"